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SEARCH REQUEST FORM

Requestor's Name: JONATHAN CREPEAU Serial Number: 09/936,611

Date: 8-9-05 Phone: (571) 272-1299 Art Unit: 1746

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevent citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevent claim(s).

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- A.A. Sequence
- ✓ Structure (1)
- ✓ Bibliographic (and)

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- DARC/Questel
- Other

PTO-1590 (9-90)

IN THE CLAIMS

Please cancel claim 8 without prejudice or disclaimer and amend the remaining claims as follows:

1. (Currently Amended) A non-aqueous electrolyte secondary battery comprising:

a positive electrode;

a negative electrode containing a negative electrode mix containing a material capable of absorbing and releasing lithium, wherein the material is at least one selected from the group consisting of alloys, intermetallic compounds, carbonaceous materials, organic compounds, inorganic compounds, metal complexes and organic high molecular compounds; and

a non-aqueous electrolyte,

wherein the positive electrode contains a lithium manganese composite oxide, which contains lithium when synthesizing the oxide, as an active material and the negative electrode contains at least one compound selected from the group consisting of ~~sodium compounds, potassium compounds, and strontium compounds,~~ NaOH, Na_2O, Na_2O_2, NaO_2, Na_2CO_3, $NaHCO_3$, Na_2SiO_3, $NaNH_2$, NaN_3, $NaHC_2$, KOH, K_2O, K_2O_2, KO_2, KN_3, KNH_2, KHC_2, $Sr(OH)_2$, SrO, SrO_2 and $SrCO_3$ and the content of said compounds in the negative electrode mix is such that the total content of the elements of sodium,

potassium and strontium is not less than 0.01% by weight and not more than 10% by weight based on the negative electrode mix.

2. CANCELLED.

3. CANCELLED.

4. CANCELLED.

5. (Previously Presented) A non-aqueous electrolyte secondary battery according to claim 1, wherein the lithium manganese composite oxide is of cubic system and has a specific surface area of not more than 2.0 m^2/g, an average particle diameter of not less than 3 μm and not more than 30 μm and a lattice constant a of not more than 8.25 Å.

6. (Previously Presented) A non-aqueous electrolyte secondary battery according to claim 1, wherein the lithium manganese composite oxide is of rhombic system and has a specific surface area of not more than 5.0 m^2/g, an average particle diameter of not less than 3 μm and not more than 30 μm, and a lattice constant a of not less than 2.75 Å, b of not less than 5.70 Å and c of not less than 4.55 Å.

16189

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Name: Jonathan Crepeau
Employee Number: 75637 Phone: 2-1299
Art Unit or Office: 1746 Building & Room Number: rem 6c11

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If not related to a patent application, please enter NA here.

Class / Subclass(es) 429/224

Earliest Priority Filing Date: 6/23/99

SCIENTIFIC REFERENCE BR
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- In your own words, describe in detail the concepts or subjects you want us to search.
- Include synonyms, keywords, and acronyms. Define terms that have special meanings.
- *For Chemical Structure Searches Only*
  Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers
- *For Sequence Searches Only*

Include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

- *For Foreign Patent Family Searches Only*
  Include the country name and patent number.
- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the **abstract, pertinent claims** (not all of the claims), **drawings, or chemical structures** to your EIC or branch library.

Enter your Search Topic Information below:

I am simply looking for a lithium (i.e. nonaqueous) battery comprising an electrode containing any of the species recited in attached claim 1. These are essentially oxides, hydroxides, carbonates, and nitrides of potassium, sodium, and strontium.

Special Instructions and Other Comments:
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=> D HIS


     FILE 'REGISTRY'
                E LITHIUM MANGANESE OXIDE/CN
L1            1 S E3
L2          834 S (LI(L)MN(L)O)/ELS (L) 3/ELC.SUB
                E SODIUM HYDROXIDE/CN
L3            1 S E3
                E DISODIUM OXIDE/CN
L4            1 S E3
                E DISODIUM DIOXIDE/CN
L5            1 S E3
                E SODIUM DIOXIDE/CN
L6            1 S E3
                E SODIUM CARBONATE/CN
L7            1 S E3
L8            1 S SODIUM BICARBONATE/CN
                E NA2O3SI/MF
                E SODIUM SILICATE/CN
L9            1 S E16
                E SODIUM AMIDE/CN
L10           1 S E3
                E SODIUM TRINITRIDE/CN
                E SODIUM NITRIDE/CN
L11           1 S E7
                E SODIUM HYDROGEN CARBIDE/CN
                E C2HNA/MF
L12           5 S E3
                E POTASSIUM HYDROXIDE/CN
L13           1 S E3
                E DIPOTASSIUM OXIDE/CN
L14           1 S E3
                E DIPOTASSIUM DIOXIDE/CN
                E POTASSIUM PEROXIDE/CN
L15           1 S E3
                E POTASSIUM DIOXIDE/CN
L16           1 S E3
                E POTASSIUM NITRIDE/CN
                E KN3/MF
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L17           4 S E3
                E POTASSIUM AMIDE/CN
L18           1 S E3
                E C2HK/MF
L19           4 S E3
                E STRONTIUM DIHYDROXIDE/CN
L20           1 S E3
                E STRONTIUM OXIDE/CN
L21           1 S E3
                E STRONTIUM DIOXIDE/CN
L22           1 S E3
                E STRONTIUM CARBONATE/CN
L23           1 S E3

     FILE 'HCA'
L24        4763 S L1 OR L2 OR LIMNO4
L25      373783 S L3 OR NAOH
L26       65541 S L4 OR NA2O
L27        4743 S L5 OR NA2O2
L28         449 S L6 OR NAO2
L29      123842 S L7 OR NA2CO3
L30       69476 S L8 OR NAHCO3
L31       10860 S L9 OR NA2SIO3
L32        7500 S L10 OR NANH2
L33       17354 S L11 OR NAN3
L34         387 S L12 OR NAHC2 OR NAC2H OR C2HNA OR HC2NA
L35      155089 S L13 OR KOH
L36       55240 S L14 OR K2O
L37         383 S L15 OR K2O2
L38        1273 S L16 OR KO2
L39         614 S L17 OR KN3
L40        1625 S L18 OR KNH2
L41          70 S L19 OR KHC2 OR KC2H OR C2HK OR HC2K
L42        1655 S L20 OR SR(W)OH(W)2
L43       16494 S L21 OR SRO
L44         560 S L22 OR SRO2
L45        7181 S L23 OR SRCO3
L46      222133 S ANOD## OR (NEG# OR NEGATIVE#)(2A)ELECTROD##
L47       10187 S L46 AND L25
L48         837 S L46(3A)L25
L49          13 S L46(3A)L26
L50           9 S L46(3A)L27
L51           0 S L46(3A)L28
L52           6 S L46 AND L28
L53         130 S L46(3A)L29
L54          44 S L46(3A)L30
L55          28 S L46(3A)L31
L56           2 S L46(3A)L32
```

L57	39	S	L46 AND L32
L58	3	S	L46(3A)L33
L59	54	S	L46 AND L33
L60	0	S	L46(3A)L34
L61	4	S	L46 AND L34
L62	719	S	L46(3A)L35
L63	6	S	L46(3A)L36
L64	1	S	L46(3A)L37
L65	11	S	L46 AND L37
L66	0	S	L46(3A)L38
L67	16	S	L46 AND L38
L68	0	S	L46(3A)L39
L69	0	S	L46 AND L39
L70	2	S	L46(3A)L40
L71	15	S	L46 AND L40
L72	0	S	L46(3A)L41
L73	0	S	L46 AND L41
L74	8	S	L46(3A)L42
L75	10	S	L46(3A)L43
L76	1	S	L46(3A)L44
L77	10	S	L46 AND L44
L78	6	S	L46(3A)L45
L79	209753	S	BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY? OR
L80	43675	S	NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR NON(A)(
L81	929	S	L79 AND L80 AND L24
L82	3254	S	LIMN2O4
L83	960	S	L79 AND L80 AND (L24 OR L82)
L84	529	S	L83 AND L46
L85	3	S	L84 AND L25
L86	3	S	L84 AND L26
L87	1	S	L84 AND L27
L88	0	S	L84 AND L28
L89	3	S	L84 AND L29
L90	0	S	L84 AND L30
L91	1	S	L84 AND L31
L92	1	S	L84 AND L32
L93	0	S	L84 AND L33
L94	0	S	L84 AND L34
L95	5	S	L84 AND L35
L96	1	S	L84 AND L36
L97	0	S	L84 AND L37
L98	0	S	L84 AND L38
L99	0	S	L84 AND L39
L100	0	S	L84 AND L40
L101	0	S	L84 AND L41
L102	1	S	L84 AND L42
L103	0	S	L84 AND L43
L104	0	S	L84 AND L44

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L105          1 S L84 AND L45
L106         12 S L85-L105
L107            QUE ELECTROD## OR ANOD## OR CATHOD##
L108       8767 S L79 AND L80 AND L107
L109       7539 S L108 AND (L24 OR L82 OR LITHIUM# OR LITHIAT? OR LI)
L110         41 S L109 AND L25
L111          7 S L109 AND L26
L112          2 S L109 AND L27
L113          0 S L109 AND L28
L114         20 S L109 AND L29
L115          7 S L109 AND L30
L116          4 S L109 AND L31
L117          1 S L109 AND L32
L118          0 S L109 AND L33
L119          0 S L109 AND L34
L120         35 S L109 AND L35
L121          4 S L109 AND L36
L122          0 S L109 AND L37
L123          0 S L109 AND L38
L124          0 S L109 AND L39
L125          0 S L109 AND L40
L126          0 S L109 AND L41
L127          4 S L109 AND L42
L128          6 S L109 AND L43
L129          0 S L109 AND L44
L130          6 S L109 AND L45
L131         34 S L111-L113 OR L115-L119 OR L121-L130
L132         77 S L110 OR L114 OR L120
L133         44 S L132 AND L46
L134          8 S L133 AND (L24 OR L82)
L135          0 S (L49 OR L65 OR L67 OR L75 OR L77) AND L133
L136          0 S (L49 OR L65 OR L67 OR L75 OR L77) AND L131
L137          0 S L134 NOT L106
L138         12 S L106 OR L134
L139         47 S (L50 OR L52 OR L56 OR L58 OR L61 OR L63 OR L64 OR L70 O
L140         53 S (L49 OR L65 OR L67 OR L75 OR L77) NOT (L138 OR L139)
L141         26 S L131 NOT (L138 OR L139 OR L140)
L142         34 S L133 NOT (L138 OR L139 OR L140 OR L141)
L143         43 S L139 AND (1840-1999/PY OR 1840-1999/PRY)
L144         41 S L140 AND (1840-1999/PY OR 1840-1999/PRY)
L145         19 S L141 AND (1840-1999/PY OR 1840-1999/PRY)
L146         29 S L142 AND (1840-1999/PY OR 1840-1999/PRY)


=> FILE HCA
FILE 'HCA'
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=> D L138 1-12 CBIB ABS HITSTR HITIND

L138 ANSWER 1 OF 12 HCA COPYRIGHT 2005 ACS on STN Bad date
142:339120 Lithium secondary **battery** for use as a power source for memory backup. Yoshimura, Seiji; Imachi, Naoki; Saishou, Keiji; Takeuchi, Masanobu; Takano, Yasuo (Japan). U.S. Pat. Appl. Publ. US 2005069779 A1 20050331, 8 pp. (English). CODEN: USXXCO. APPLICATION: US 2004-947325 20040923. PRIORITY: JP 2003-333650 20030925.

AB The invention concerns a lithium secondary **battery** including a pos. **electrode**, a **neg.** **electrode** which is a lithium-aluminum alloy, a separator of a glass fiber including SiO2, B2O3 and **Na2O**, and a **nonaq.** electrolyte including a solute and a solvent. The lithium secondary **battery** has excellent **battery** characteristics after a reflow treatment.

IT **12057-17-9**, Lithium manganese oxide (**LiMn2O4**)
(lithium secondary **battery** for use as power source for memory backup)
RN 12057-17-9 HCA
CN Lithium manganese oxide (LiMn2O4) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IT **1313-59-3**, Sodium oxide (**Na2O**), uses
12136-45-7, Potassium oxide (**K2O**), uses
(lithium secondary **battery** for use as power source for memory backup)
RN 1313-59-3 HCA
CN Sodium oxide (Na2O) (9CI) (CA INDEX NAME)

Na—O—Na

RN 12136-45-7 HCA
CN Potassium oxide (K2O) (8CI, 9CI) (CA INDEX NAME)

K—O—K

IC ICM H01M002-16
ICS H01M004-40; H01M010-40
INCL 429247000; 429231950; 429224000; 429324000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
ST lithium secondary **battery** use power source memory backup
IT Polyoxyalkylenes, uses
(alkyl group-terminated; lithium secondary **battery** for use as power source for memory backup)
IT Intercalation
(electrochem.; lithium secondary **battery** for use as power source for memory backup)
IT Electric resistance
Memory devices
Secondary **battery** separators
(lithium secondary **battery** for use as power source for memory backup)
IT Glass fibers, uses
(lithium secondary **battery** for use as power source for memory backup)
IT Carbon black, uses
(lithium secondary **battery** for use as power source for memory backup)
IT Secondary **batteries**
(lithium; lithium secondary **battery** for use as power source for memory backup)
IT 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diethylene glycol dimethyl ether 112-36-7, Diethylene glycol diethyl ether 112-49-2, Triethylene glycol dimethyl ether 143-24-8, Tetraethylene glycol dimethyl ether 4499-99-4, Triethylene glycol diethyl ether 7429-90-5, Aluminum, uses 7439-93-2D, Lithium, perfluoroalkylsulfonyl imide 7791-03-9, Lithium perchlorate 11107-04-3, Sus316 11109-50-5, Sus304 **12057-17-9**, Lithium manganese oxide (**LiMn2O4**) 12798-95-7 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6 132404-42-3 132843-44-8, Lithium bis(pentafluoroethylsulfonyl)imide 142703-60-4 189217-56-9
(lithium secondary **battery** for use as power source for memory backup)
IT 518-44-5, Fluorescin 1303-86-2, Boron oxide (B2O3), uses 1305-78-8, Calcium oxide, uses **1313-59-3**, Sodium oxide (

Na2O), uses 7631-86-9, Silica, uses **12136-45-7**, Potassium oxide (**K2O**), uses
(lithium secondary **battery** for use as power source for memory backup)

IT 59371-97-0
(lithium secondary **battery** for use as power source for memory backup)

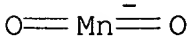
L138 ANSWER 2 OF 12 HCA COPYRIGHT 2005 ACS on STN Bal date

139:325951 Precursor electric **battery** and **lithium** secondary **battery**. Fukuoka, Satoru; Morita, Seiji; Nishiguchi, Nobuhiro; Naruse, Satoru; Imanishi, Masahiro; Muraki, Masayuki; Ise, Tadashi; Yamamoto, Yuji (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003297361 A2 20031017, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-286194 20020930. PRIORITY: JP 2002-24384 20020131.

AB The title **battery** is characterized by being able to restrict the redox decompn. of the electrolyte soln. due to **battery** temp. increase which could cause the **battery** vol. expansion, inner resistance increase, and the decrease of **battery** charge capacity. The precursor **battery** consists of a precursor pos. **electrode** contg. precursor pos. **electrode** active material, a precursor **neg. electrode**, and **nonaq.** electrolyte. **Lithium** manganese composite oxide contg. trivalent Mn is used as the precursor pos. **electrode** active material, such as LiMnO2 or Li2Mn2O4. The pos. **electrode** active material also contains boron oxide of .ltoreq.1-20% of the total mass. The **neg. electrode** active material is made of material free of **Li** but being able to absorb and store **Li**
.

IT **12162-79-7P, Lithium** manganese oxide LiMnO2
166187-76-4P, Lithium manganese oxide Li2Mn2O4
(precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)

RN 12162-79-7 HCA
CN Manganate (MnO21-), lithium (9CI) (CA INDEX NAME)



RN 166187-76-4 HCA

CN Lithium manganese oxide (Li2Mn2O4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Mn	2	7439-96-5
Li	2	7439-93-2

IT **1310-58-3**, Potassium hydroxide, reactions
(precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)
RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K—OH

IC ICM H01M004-58
ICS H01M002-02; H01M010-40
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
ST precursor elec **battery** **lithium** secondary **electrode** active material
IT Secondary **batteries**
(**lithium**; precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)
IT **Electrodes**
(precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)
IT Carbon black, uses
Fluoropolymers, uses
Polythiophenylenes
(precursor elec. **battery**; precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)
IT 1303-86-2, Boron oxide, uses
(precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)
IT **12162-79-7P**, **Lithium** manganese oxide LiMnO2
166187-76-4P, **Lithium** manganese oxide Li2Mn2O4
(precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)

IT **1310-58-3**, Potassium hydroxide, reactions 1310-65-2, **Lithium** hydroxide 1313-13-9, Manganese dioxide, reactions 1317-34-6, Manganese oxide mn2o3
(precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)

IT 7439-93-2, **Lithium**, uses
(precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)

IT 7429-90-5, Aluminum, uses 9002-84-0, Polytetrafluoroethylene 12798-95-7
(precursor elec. **battery**; precursor elec. **battery** and **lithium** secondary **battery** using **electrode** active material)

L138 ANSWER 3 OF 12 HCA COPYRIGHT 2005 ACS on STN Bad date

138:15262 Secondary **lithium battery**. Ito, Akinori; Fujii, Akihiro; Shiozaki, Ryuji; Okabe, Kazuya; Yufu, Hiroshi (Yuasa Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2002352860 A2 20021206, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-162085 20010530.

AB The **battery** having a **Li**-intercalating **cathode**, an **anode** and an **nonaq.** electrolyte soln., contains .gtoreq.1 compd., whose aq. soln. is alk., in a place contacting the electrolyte. Preferably, the compd. is selected from Li2SiO3, **Na2SiO3**, K2SiO3, LiOH, **NaOH**, **KOH**, sodium borate and potassium borate.

IT **39457-42-6**, **Lithium** manganese oxide
(**lithium battery cathodes** contg. compd. showing alky. in aq. solns. between **electrodes** contacting electrolyte)

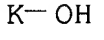
RN 39457-42-6 HCA

CN Lithium manganese oxide (9CI) (CA INDEX NAME)

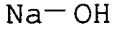
Component	Ratio	Component Registry Number
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IT **1310-58-3**, Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide, uses **6834-92-0**, Sodium silicate (**Na2SiO3**)
(secondary **lithium batteries** contg. compd. showing alky. in aq. solns. between **electrodes** contacting electrolyte)

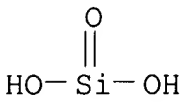
RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)



RN 1310-73-2 HCA
CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)



RN 6834-92-0 HCA
CN Silicic acid (H2SiO3), disodium salt (8CI, 9CI) (CA INDEX NAME)



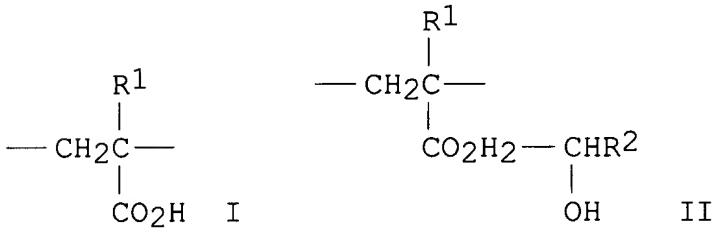
●2 Na

IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary **lithium battery** aq alk compd compn
IT **Battery cathodes**
(**lithium battery cathodes** contg. compd. showing alky. in aq. solns. between **electrodes** contacting electrolyte)
IT Secondary **battery** separators
(**lithium battery** separators contg. compd. showing alky. in aq. solns. between **electrodes** contacting electrolyte)
IT Secondary **batteries**
(**lithium**; secondary **lithium batteries** contg. compd. showing alky. in aq. solns. between **electrodes** contacting electrolyte)
IT **39457-42-6**, **Lithium** manganese oxide
(**lithium battery cathodes** contg. compd. showing alky. in aq. solns. between **electrodes** contacting electrolyte)
IT **1310-58-3**, Potassium hydroxide, uses 1310-66-3, **Lithium** hydroxide monohydrate **1310-73-2**, Sodium hydroxide, uses **6834-92-0**, Sodium silicate (**Na2SiO3**) 10006-28-7, Potassium silicate (K2SiO3) 10102-24-6, **Lithium** silicate (Li2SiO3) 10555-76-7,

Sodium metaborate tetrahydrate
(secondary **lithium batteries** contg. compd. showing alky. in aq. solns. between **electrodes** contacting electrolyte)

L138 ANSWER 4 OF 12 HCA COPYRIGHT 2005 ACS on STN Bad date
136:56415 Binder compositions for secondary **lithium battery** and the **battery**. Nishimura, Noboru; Suzuki, Kenji; Mashimo, Kiyotaka; Nakazawa, Akira; Ito, Toshihiko (Hitachi Ltd., Japan; Hitachi Chemical Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2001357853 A2 20011226, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-180740 20000612.

GI



AB The binder is a copolymer contg. repeating units I (R1 = H or Me) and II (R2 = mono-epoxy compd. residue), has acid value 200-700 mg **KOH**/g, and is dissolved an/or dispersed in a **nonaq**. solvent. The **battery** uses LixMnyO2 [0.2 .ltoreq.x .ltoreq.2.5 (sic), 0.8 .ltoreq.y .ltoreq.1.25] **cathode** and/or **Li** intercalating carbonaceous **anode**, having an active mass slurry contg. the binder applied on a collector, and having the solvent remove afterwards.

IT **39457-42-6, Lithium** manganese oxide
(binder compns. for **electrodes** in secondary **lithium batteries**)

RN 39457-42-6 HCA

CN Lithium manganese oxide (9CI) (CA INDEX NAME)

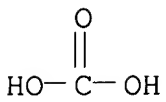
Component	Ratio	Component Registry Number
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IC ICM H01M004-62
ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST secondary **lithium battery electrode**
carboxylic copolymer binder
IT **Battery electrodes**
Binders
(binder compns. for **electrodes** in secondary **lithium batteries**)
IT Carbonaceous materials (technological products)
(binder compns. for **electrodes** in secondary **lithium batteries**)
IT **39457-42-6, Lithium** manganese oxide 331628-40-1,
Poly(acrylic acid), ester with phenyl glycidyl ether
(binder compns. for **electrodes** in secondary **lithium batteries**)

INSTANT APP.

L138 ANSWER 5 OF 12 HCA COPYRIGHT 2005 ACS on STN
134:74019 secondary **nonaqueous** electrolyte **batteries**
. Nakashima, Takuya; Arimoto, Shinji; Nagayama, Masatoshi; Nitta, Yoshiaki (Matsushita Electric Industrial Co., Ltd., Japan). PCT Int. Appl. WO 2000079620 A1 20001228, 26 pp. DESIGNATED STATES: W: CN, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2000-JP4040 20000621. PRIORITY: JP 1999-176447 19990623.
AB The **batteries** have **Li** Mn oxide **cathodes**
, **Li** intercalating **anodes**, and **nonaq**.
electrolyte solns.; where the **anodes** contain Na, K, Ca, and/or Sr. Preferably, the **Li** Mn oxide has a cubic cryst. structure with sp. surface area A .ltoreq.2.0 m2/g, av. particle diam. D 3-30 .mu.m, and lattice const. La .ltoreq.8.25.ANG.; or has a monoclinic structure with A .ltoreq.5 m2/g, D 3-30 .mu.m, and La .gtoreq.2.75, Lb .gtoreq.5.70, and Lc .gtoreq.4.55.ANG..
IT **497-19-8**, Sodium carbonate, uses **1310-58-3**,
Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide,
uses **1313-60-6**, Sodium peroxide **7782-92-5**,
Sodium amide **18480-07-4**, Strontium hydroxide
(additives for **lithium** intercalating graphite **anodes** in secondary **lithium batteries**
)
RN 497-19-8 HCA
CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K—OH

RN 1310-73-2 HCA
CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na—OH

RN 1313-60-6 HCA
CN Sodium peroxide (Na2(O2)) (8CI, 9CI) (CA INDEX NAME)

Na—O—O—Na

RN 7782-92-5 HCA
CN Sodium amide (Na(NH2)) (9CI) (CA INDEX NAME)

H_2N—Na

RN 18480-07-4 HCA
CN Strontium hydroxide (Sr(OH)2) (9CI) (CA INDEX NAME)

HO—Sr—OH

IT **39457-42-6, Lithium** manganese oxide
(controlled properties of **lithium** manganese oxide for **cathodes** in secondary **lithium batteries**
)
RN 39457-42-6 HCA
CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component

		Registry Number
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IC ICM H01M004-02
ICS H01M004-38; H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary **lithium battery anode** additive; sodium **anode** additive secondary **lithium battery**; potassium **anode** additive secondary **lithium battery**; calcium **anode** additive secondary **lithium battery**; strontium **anode** additive secondary **lithium battery** ; **lithium** manganese oxide **battery cathode**
IT **Battery anodes**
(additives for **lithium** intercalating graphite **anodes** in secondary **lithium batteries**)
IT **Battery cathodes**
Crystal structure
Particle size
Surface area
(controlled properties of **lithium** manganese oxide for **cathodes** in secondary **lithium batteries**)
IT **497-19-8**, Sodium carbonate, uses 1305-62-0, Calcium hydroxide, uses **1310-58-3**, Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide, uses **1313-60-6**, Sodium peroxide **7782-92-5**, Sodium amide **18480-07-4** , Strontium hydroxide
(additives for **lithium** intercalating graphite **anodes** in secondary **lithium batteries**)
IT 7782-42-5, Graphite, uses
(artificial; additives for **lithium** intercalating graphite **anodes** in secondary **lithium batteries**)
IT **39457-42-6**, **Lithium** manganese oxide
(controlled properties of **lithium** manganese oxide for **cathodes** in secondary **lithium batteries**)

L138 ANSWER 6 OF 12 HCA COPYRIGHT 2005 ACS on STN
133:352660 Secondary **nonaqueous** electrolyte **batteries**
. Numata, Tatsuji; Kanbe, Chinatsu; Watanabe, Mikio (NEC Corp.,

relevant but in cathode

Bad date though.

Japan). Jpn. Kokai Tokkyo Koho JP 2000311689 A2 20001107, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-117879 19990426.

AB The **batteries** use Li Mn oxide cathodes and Li intercalating **anodes**, and contain oxides and/or carbonates of La, Sr, Nd, and/or Sm or a multiple oxide of Mn and .gtoreq.1 of the above metals.

IT **39457-42-6**, Lithium manganese oxide
(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

RN 39457-42-6 HCA

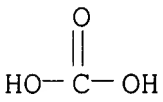
CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IT **1633-05-2**, Strontium carbonate
(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

RN 1633-05-2 HCA

CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-62
ICS H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** carbonate additive; oxide additive secondary lithium **battery**; manganese multiple oxide additive secondary lithium **battery**; lanthanum compd additive secondary lithium **battery**; strontium compd additive secondary lithium **battery**; neodymium compd additive secondary lithium **battery**; samarium compd additive secondary lithium **battery**

IT **Battery** cathodes
(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

IT **39457-42-6**, Lithium manganese oxide

(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

IT 1312-81-8, Lanthanum oxide (La2O3) 1313-97-9, Neodymium oxide (Nd2O3) **1633-05-2**, Strontium carbonate 12060-58-1, Samarium oxide (Sm2O3)
(additives for lithium manganese oxide cathodes in secondary lithium **batteries**)

L138 ANSWER 7 OF 12 HCA COPYRIGHT 2005 ACS on STN Bad date
133:323938 Manufacture of spinel-type **lithium** manganate for **battery** having high-temperature stability. Numata, Koichi; Kamata, Tsuneyoshi; Nakajima, Takuya; Arimoto, Shinji (Mitsui Mining and Smelting Co., Ltd., Japan; Matsushita Electric Industrial Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2000290017 A2 20001017, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-101272 19990408.

AB The spinel-type **lithium** manganate is manufd. by neutralizing the manganese dioxide obtained from the ppt. of electrolysis with potassium hydroxide or potassium carbonate and mixing the electrolytic manganese dioxide having pH .gtoreq.2 with **lithium** compd. and sintering the mixt. at .gtoreq.750.degree.. The **lithium** manganate can be used as pos. **electrode** in an **nonaq.** electrolyte secondary **battery** using **lithium**-based material as **neg. electrode.**

IT **1310-58-3**, Potassium hydroxide, uses
(manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)

RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K—OH

IT **12057-17-9P**, **Lithium** manganate **LiMn2O4**
(spinel-type; manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)

RN 12057-17-9 HCA
CN Lithium manganese oxide (LiMn2O4) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IC ICM C01G045-00
ICS H01M004-02; H01M004-58; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST spinel type **lithium** manganate **battery** pos **electrode**
IT Fluoropolymers, uses
(binder; manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)
IT Carbon black, uses
(conducting agent; manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)
IT **Battery electrodes**
(manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability as)
IT 9002-84-0, Polytetrafluoroethylene
(binder; manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)
IT 96-49-1, Ethylene carbonate
(electrolyte; manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)
IT 1313-13-9P, Manganese dioxide, preparation
(manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)
IT 584-08-7, Potassium carbonate **1310-58-3**, Potassium hydroxide, uses
(manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)
IT 554-13-2, **Lithium** carbonate 7785-87-7, Manganese sulfate
(manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)
IT **12057-17-9P, Lithium** manganate **LiMn2O4**
(spinel-type; manuf. of spinel-type **lithium** manganate for **battery** having high-temp. stability)

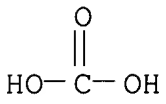
print out.

Na_2CO_3 in cathode.

L138 ANSWER 8 OF 12 HCA COPYRIGHT 2005 ACS on STN
129:111372 Secondary **nonaqueous** electrolyte **batteries**. Endo, Takuya; Takahashi, Kimio (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 10188953 A2 19980721 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-359248 19961227.
AB The **batteries** use **Li** or **Li** contg. **anodes** and Mn oxide or **Li** Mn oxide **cathodes**, where the **cathode** active mass mixt. contains, in dried state, 0.5-20% alkali metal carbonate.
IT **12057-17-9, Lithium** manganese oxide (**LiMn2O4**)
(manganese oxide and **lithium** manganese oxide **cathode** active mass contg. alkali metal carbonate for **batteries**)
RN 12057-17-9 HCA
CN Lithium manganese oxide (LiMn2O4) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IT **497-19-8**, Sodium carbonate, uses
(manganese oxide and **lithium** manganese oxide **cathode** active mass contg. alkali metal carbonate for **batteries**)
RN 497-19-8 HCA
CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M004-02
ICS H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary **lithium battery cathode** carbonate additive; **lithium battery cathode** alkali metal carbonate; manganese oxide **cathode** alkali metal carbonate
IT Secondary **batteries**
(**lithium**; manganese oxide and **lithium** manganese oxide **cathode** active mass contg. alkali metal carbonate for **batteries**)
IT 1313-13-9, Manganese dioxide, uses **12057-17-9**, **Lithium** manganese oxide (**LiMn2O4**)
(manganese oxide and **lithium** manganese oxide **cathode** active mass contg. alkali metal carbonate for **batteries**)
IT **497-19-8**, Sodium carbonate, uses 554-13-2, **Lithium** carbonate
(manganese oxide and **lithium** manganese oxide **cathode** active mass contg. alkali metal carbonate for **batteries**)

L138 ANSWER 9 OF 12 HCA COPYRIGHT 2005 ACS on STN
125:304985 Secondary **nonaqueous**-electrolyte lithium

No Sodium oxide only.

batteries with improved cathodes and electrolyte solvents. Hayashi, Katsuya; Tobishima, Shinichi; Yamaki, Junichi (Nippon Telegraph & Telephone, Japan). Jpn. Kokai Tokkyo Koho JP 08236151 A2 19960913 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-63483 19950228.

AB The **batteries** use Li or Li alloy **anodes**, cathodes of LixMn2-yMyO4 (M = Na, Mg, Sc, Y, Fe, Co, Ni, Cu, Zn, Al, Pb, Sb; x .ltoreq.1.2; and y = >0-0.7) or Mn2O4, and Li salt electrolytes dissolved in mixed solvents contg. 6:4-9:1 (MeO)2CO and cyclic esters. The cathodes need .gtoreq.3.5 V charge finishing voltage. The cyclic esters may be propylene carbonate, .gamma.-butyrolactone, and/or sulfolane. The Li salts may be 0.5-1.5M LiPF6, LiAsF6, or LiClO4. The cathodes may be LixMn2-yCoyO4.

IT **12057-17-9**, Lithium manganese oxide (**LiMn2O4**) (**battery** cathodes)

RN 12057-17-9 HCA

CN Lithium manganese oxide (LiMn2O4) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IT **1313-59-3**, Sodium oxide, processes (in manuf. of **battery** cathodes)

RN 1313-59-3 HCA

CN Sodium oxide (Na2O) (9CI) (CA INDEX NAME)

Na—O—Na

IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium manganese cobalt oxide **battery** cathode; electrolyte **battery** methyl carbonate solvent; ester cyclic solvent **battery** electrolyte

IT **Battery** electrolytes (contg. mixed solvents)

IT Cathodes (**battery**, cobalt-lithium-manganese oxide)

IT 1313-13-9, Manganese oxide (MnO2), uses **12057-17-9**, Lithium manganese oxide (**LiMn2O4**) 146956-26-5, Cobalt Lithium Manganese Oxide (Co0.1LiMn1.9O4) 174180-07-5, Cobalt lithium manganese oxide (Co0-0.7Li0-1.2Mn1.3-2O4) (**battery** cathodes)

IT 96-48-0, .gamma.-Butyrolactone 108-32-7, Propylene carbonate 126-33-0, Sulfolane 616-38-6, Dimethyl carbonate
(**battery** electrolytes contg.)
IT 1309-48-4, Magnesia, processes **1313-59-3**, Sodium oxide, processes 1313-99-1, Nickel oxide, processes 1314-13-2, Zinc oxide, processes 1314-36-9, Yttria, processes 1327-33-9, Antimony oxide 1332-37-2, Iron oxide, processes 1335-25-7, Lead oxide 1344-28-1, Alumina, processes 1344-70-3, Copper oxide 12060-08-1, Scandium oxide
(in manuf. of **battery** cathodes)

L138 ANSWER 10 OF 12 HCA COPYRIGHT 2005 ACS on STN No sod. oxide
125:173397 **Nonaqueous**-electrolyte secondary lithium **batteries** with improved electrolytes and cathodes. Hayashi, Katsuya; Tobishima, Shinichi; Arai, So; Yamaki, Junichi (Nippon Telegraph & Telephone, Japan). Jpn. Kokai Tokkyo Koho JP 08190933 A2 19960723 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-15577 19950106.
AB The **batteries** use Li-intercalatable **anodes**, cathodes, which need charge end voltage .gtoreq.3.5 V, and Li salt electrolytes dissolved in mixed solvents contg. .gtoreq.5:5 and <0:10 vol. ratio of ethylene carbonate (I) and esters or ethers having lower viscosity than that of I. The cathodes may be from mixed oxides contg. LixMn2-yMyO4 (M = Na, Mg, Sc, Y, Co, Ni, Cu, Zn, Al, Pb, Sb; x = 0-1.2; y = 0-0.7) and Mn2O4. The esters or ethers may be (MeO)2CO, (MeO)2CO, and/or Me Et carbonate. The Li salts may be LiPF6, LiAsF6, or LiClO4 at 0.5-1.5 mol/L. The **batteries** may use the electrolyte solvents contg. 3:7-1:9 vol. ratio of I and (MeO)2CO, and cathodes from LixMn2-yCoyO4 (x = 0-1.2; yr = 0-0.7).
IT **1313-59-3**, Sodium oxide, processes
(cathode component; solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)
RN 1313-59-3 HCA
CN Sodium oxide (Na2O) (9CI) (CA INDEX NAME)

Na—O—Na

IT **12057-17-9**, Lithium manganese oxide (**liMn2O4**)
(solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)
RN 12057-17-9 HCA
CN Lithium manganese oxide (LiMn2O4) (6CI, 7CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

IC ICM H01M010-40
ICS H01M004-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST ethylene carbonate **battery** electrolyte solvent; lithium manganese cobalt oxide cathode
IT **Battery** electrolytes
(solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)
IT Cathodes
(**battery**, solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)
IT Lithium alloy, base
(**anodes**; solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)
IT 7439-93-2, Lithium, uses
(**anodes**; solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)
IT 1309-48-4, Magnesium oxide, processes **1313-59-3**, Sodium oxide, processes 1313-99-1, Nickel oxide (NiO), processes 1314-13-2, Zinc oxide, processes 1314-36-9, Yttria, processes 1327-33-9, Antimony oxide 1332-37-2, Iron oxide, processes 1335-25-7, Lead oxide 1344-28-1, Alumina, processes 1344-70-3, Copper oxide 37200-34-3, Scandium oxide
(cathode component; solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)
IT 7791-03-9, Lithium perchlorate **12057-17-9**, Lithium manganese oxide (**liMn2O4**) 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 146956-26-5, Cobalt lithium manganese oxide (Co0.1LiMn1.9O4) 174180-07-5, Cobalt lithium manganese oxide (Co0-0.7Li0-1.2Mn1.3-2O4)
(solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
(solvent contg. ethylene carbonate and ester or ether for Li salt electrolytes in **battery** using Li Mn oxide cathodes)

L138 ANSWER 11 OF 12 HCA COPYRIGHT 2005 ACS on STN
125:91278 Secondary **nonaqueous batteries** and their

Na_2CO_3 used in method. print out.

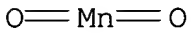
manufacture. Ishizuka, Hiroshi; Tomiyama, Hideki (Fuji Photo Film Co., Ltd., Japan). PCT Int. Appl. WO 9613873 A1 19960509, 49 pp. DESIGNATED STATES: W: AU, CA, CN, FI, JP, KR, SG, US, VN; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1995-JP2205 19951026. PRIORITY: JP 1994-263794 19941027; JP 1994-293635 19941104; JP 1995-75232 19950331.

AB The **batteries** use **Li** intercalating **cathodes** and **anodes**, where either or both **electrodes** use an aq. conductive agent paste contg. a dispersing agent. The **batteries** are prepd. by applying a mixt. contg. the **Li** intercalating active mass and an aq. C compd. based conductive agent paste contg. a dispersing agent. The mixt. for **anode** has its pH adjusted to 5-10.

IT **12162-79-7, Lithium** manganese oxide (LiMnO2)
(dispersing agents in manuf. of **lithium** manganese oxide **cathodes** for **lithium batteries**)

RN 12162-79-7 HCA

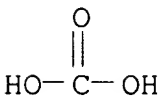
CN Manganate (MnO21-), lithium (9CI) (CA INDEX NAME)



IT **497-19-8**, Sodium carbonate, uses
(neutralizing agent in manuf. of paste type **electrodes** for **lithium batteries**)

RN 497-19-8 HCA

CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M004-04; H01M004-48; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium battery electrode** conductive agent paste; dispersing agent **battery electrode**

conductive agent
IT Dispersing agents
(dispersing agents in manuf. of paste type **electrodes** for **lithium batteries**)
IT **Electrodes**
(**battery**, dispersing agents in manuf. of paste type **electrodes** for **lithium batteries**)
IT 178990-02-8
(dispersing agents in manuf. of aluminum boron magnesium silicon tin oxide **anodes** for **lithium batteries**)
IT 178990-01-7
(dispersing agents in manuf. of aluminum boron phosphorus silicon tin oxide **anodes** for **lithium batteries**)
IT 178990-03-9, Aluminum tin borate oxide phosphate (Al0.3Sn(BO3)0.5O0.4(PO4)0.2)
(dispersing agents in manuf. of aluminum boron phosphorus tin oxide **anodes** for **lithium batteries**)
IT 178989-96-3
(dispersing agents in manuf. of aluminum germanium phosphorus silicon tin oxide **anodes** for **lithium batteries**)
IT 167994-61-8, Aluminum tin oxide phosphate silicate (Al0.2SnO0.2(PO4)0.2(SiO3)0.8) 176547-75-4, Aluminum tin oxide phosphate silicate (Al0.2SnO0.1(PO4)0.4(SiO3)0.6) 178990-00-6
(dispersing agents in manuf. of aluminum phosphorus silicon tin oxide **anodes** for **lithium batteries**)
IT 178989-98-5, Aluminum tin metaphosphate oxide (Al0.2Sn(PO3)2O1.3)
(dispersing agents in manuf. of aluminum phosphorus tin oxide **anodes** for **lithium batteries**)
IT 1309-64-4, Antimony oxide (Sb2O3), uses
(dispersing agents in manuf. of antimony oxide **anodes** for **lithium batteries**)
IT 178989-94-1, Antimony tin oxide phosphate silicate (Sb0.1SnO0.05(PO4)0.2(SiO3)0.8)
(dispersing agents in manuf. of antimony phosphorus silicon tin oxide **anodes** for **lithium batteries**)
IT 1304-76-3, Bismuth oxide, uses
(dispersing agents in manuf. of bismuth oxide **anodes** for **lithium batteries**)
IT 12190-79-3, Cobalt **lithium** oxide (CoLiO2)
(dispersing agents in manuf. of cobalt **lithium** oxide **cathodes** for **lithium batteries**)
IT 143-19-1, Sodium oleate 9002-89-5, Poly(vinyl alcohol) 9003-01-4, Polyacrylic acid 9004-32-4 9011-13-6, Maleic anhydride-styrene copolymer
(dispersing agents in manuf. of **electrodes** for

lithium batteries)
IT 20619-16-3, Germanium oxide (GeO)
(dispersing agents in manuf. of germanium oxide **anodes** for **lithium batteries**)
IT 178989-95-2, Germanium tin oxide phosphate silicate (Ge0.2Sn00.5(P04)0.2(Si03)0.6)
(dispersing agents in manuf. of germanium phosphorus silicon tin oxide **anodes** for **lithium batteries**)
IT 1314-27-8, Lead oxide (Pb203) 1317-36-8, Lead oxide (PbO), uses
(dispersing agents in manuf. of lead oxide **anodes** for **lithium batteries**)
IT **12162-79-7**, **Lithium** manganese oxide (LiMn02)
(dispersing agents in manuf. of **lithium** manganese oxide **cathodes** for **lithium batteries**)
IT 12031-65-1, **Lithium** nickel oxide (LiNi02)
(dispersing agents in manuf. of **lithium** nickel oxide **cathodes** for **lithium batteries**)
IT 13453-84-4, **Lithium** silicate (Li4Si04)
(dispersing agents in manuf. of **lithium** silicate **anodes** for **lithium batteries**)
IT 173213-43-9, **Lithium** oxide silicide (LiOSi)
(dispersing agents in manuf. of **lithium** silicon oxide **anodes** for **lithium batteries**)
IT 176547-74-3, Tin metaphosphate oxide silicate (Sn(P03)0.200.1(Si03)0.8) 178989-99-6, Tin metaphosphate oxide silicate (Sn(P03)0.400.2(Si03)0.6)
(dispersing agents in manuf. of phosphorus silicon tin oxide **anodes** for **lithium batteries**)
IT 178989-97-4, Tin metaphosphate oxide (Sn(P03)20)
(dispersing agents in manuf. of phosphorus tin oxide **anodes** for **lithium batteries**)
IT 15773-66-7
(dispersing agents in manuf. of silicon tin oxide **anodes** for **lithium batteries**)
IT 21651-19-4, Tin oxide (SnO)
(dispersing agents in manuf. of tin oxide **anodes** for **lithium batteries**)
IT **497-19-8**, Sodium carbonate, uses 1310-65-2, **Lithium** hydroxide
(neutralizing agent in manuf. of paste type **electrodes** for **lithium batteries**)

L138 ANSWER 12 OF 12 HCA COPYRIGHT 2005 ACS on STN (No Li in cathode proces.)
115:75374 Secondary **nonaqueous batteries**. Furukawa, Sanehiro; Noma, Toshuki; Yamamoto, Juji (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 03093163 A2 19910418 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-227990 19890901.

AB In **batteries** having **anodes** of **Li** (or **Li** alloy) and **cathode** active materials of **Li**-Mn complex oxides, the Na content of the complex oxides is decreased. Low Na content in the **cathode** increases the **cathode** capacity and charge-discharge cycle lifetime. Thus, 100 g MnO2 obtained by electrooxidn. of a soln. contg. 1M MnO2 and 1M H2SO4 was washed, suspended in 1L 0.8M NH4OH, stirred for 2 h at 60.degree., and washed and dried to obtain MnO2 contg. 50 ppm Na. A mixt. of 80 g MnO2 and 20 g LiOH was baked at 375.degree. for 20 h. A **battery** with a **cathode** based on the Mn-**Li** complex oxide, a **Li anode**, and 1M LiClO4/propylene carbonate-MeOCH2CH2OMe electrolyte showed 48 mA-h initial capacity vs. 29 mA-h for a ref. **battery** with **cathode** contg. complex oxide prepd. using MnO2 contg. 5000 ppm Na (0.8M **NaOH** used instead of 0.8M NH4OH for neutralization). The **batteries** showed much longer cycle lifetime than the ref. **batteries.**

IT **39457-42-6, Lithium** manganese oxide
(**cathode,** for **lithium batteries,** sodium decrease in, for improved performance)

RN 39457-42-6 HCA

CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IC ICM H01M004-58
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **cathode battery lithium** manganese oxide; manganese dioxide low sodium **battery**

IT **Cathodes**
(**battery,** manganese **lithium** oxide, with low sodium content, for improved **battery** performance)

IT **39457-42-6, Lithium** manganese oxide
(**cathode,** for **lithium batteries,** sodium decrease in, for improved performance)

IT 7440-23-5, Sodium, uses and miscellaneous
(removal of, from manganese **lithium** oxide **cathodes,** for improved performance of **lithium batteries**)

=> D L143 1-43 TI

L143 ANSWER 1 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI A carbon-oxygen electricity-generating unit with carbon-containing **anode**, an electrolyte and a solid state cathode

L143 ANSWER 2 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Secondary nonaqueous-electrolyte battery

L143 ANSWER 3 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Reprocessing for spent nuclear fuels by electrolysis and separation of the same from cladding tubes

L143 ANSWER 4 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Simplified zinc anode with multiple electrode assemblies

L143 ANSWER 5 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electron microscopic characterization of SrTiO3 films obtained by anodic spark deposition

L143 ANSWER 6 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Synthesis of diamond-like phase of carbon by an electrochemical method

L143 ANSWER 7 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Sealed Zn secondary battery and Zn anode with decreased solubility

L143 ANSWER 8 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Gas releasing electrochemical cell for fluid dispensing applications

L143 ANSWER 9 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Alkaline batteries with mercury-free zinc alloy anodes

L143 ANSWER 10 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI The effect of some trace metal impurities on the electrowinning of zinc from Kidd Creek electrolyte

L143 ANSWER 11 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Reagent addition effects in zinc electrowinning from Kidd Creek electrolyte

L143 ANSWER 12 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Alkali metal (sodium) battery with coated (.beta.-alumina) solid electrolyte

L143 ANSWER 13 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Nickel hydroxide and derived phases obtained by chimie douce [exchange, oxidation and reduction] from sodium nickelate (NaNiO2)

L143 ANSWER 14 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anodic oxidation of titanium in nitrate melts

L143 ANSWER 15 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Zinc alkaline batteries

L143 ANSWER 16 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Method and an electrolytic bath for coating articles of aluminum

L143 ANSWER 17 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electrostatic separators

L143 ANSWER 18 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anode for lead acid battery

L143 ANSWER 19 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Effect of some implanted ions on the corrosion behavior of carbon steel

L143 ANSWER 20 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Coulometric titration of cysteine and glutathione by induced oxidation of sodium azide with anodically generated iodine

L143 ANSWER 21 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anode slimes - wastes from capacitor production as raw material for the preparation of low-alkali finely divided aluminum hydroxides and oxides

L143 ANSWER 22 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anodic dissolution of molybdenum in sodium peroxide solutions

L143 ANSWER 23 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Behavior of oxygen ions in nitrate melts

L143 ANSWER 24 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anodic polarization of mild steel in molten sodium nitrate-potassium nitrate eutectic containing acid and base additions

L143 ANSWER 25 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Alkaline battery

L143 ANSWER 26 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electrochemical behavior of oxygen in a lithium nitrate-potassium nitrate melt

L143 ANSWER 27 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Cathodic dissolution and anodic deposition of lead during the electrolysis of fused caustic potash

L143 ANSWER 28 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anode for storage batteries

L143 ANSWER 29 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electrostatic separation of sylvite and kieserite from crude salts containing clay

L143 ANSWER 30 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Anodic oxide films on titanium formed in molten salt electrolytes. II. Effect of formation electrolyte on nonstoichiometry of the film

L143 ANSWER 31 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI The titanium electrode in oxidizing media

L143 ANSWER 32 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Measurement of gas evolution from anodes during electron bombardment

L143 ANSWER 33 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Deviations from the photoelectric proportionality law of gas-filled photocells in the low-current region and in the abnormal glow region

L143 ANSWER 34 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electrolyses of cyanides. II. Electrolysis of cyanides in anhydrous liquid ammonia

L143 ANSWER 35 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Contribution of the study of nitrides, acetylides, and silicides. Evidence for the N--- ion. Investigations of the existence of a carbon ion

L143 ANSWER 36 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electrolysis in anhydrous acetic acid

L143 ANSWER 37 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI The anodic oxidation of higher members of the aluminum family in liquid ammonia

L143 ANSWER 38 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI The electrolytic dissociation of sodium and lithium acetylides in liquid ammonia

L143 ANSWER 39 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Compounds of germanium and hydrogen. III. Monoalkylgermanes. IV. Potassium germanyl. V. Electrolysis of sodium germanyl

L143 ANSWER 40 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Products of electrolysis of molten salts with an iron anode

L143 ANSWER 41 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI Electrolytic dissociation of acetylene and its metallic derivatives

L143 ANSWER 42 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI The Phosphorescence of Some Inorganic Salts

L143 ANSWER 43 OF 43 HCA COPYRIGHT 2005 ACS on STN
TI PtO3, A New Oxidation Product of Platinum

=> D L143 2,4,7,9,12,15,18,25,28,31 CBIB ABS HITSTR HITIND

print out. $SrCO_3$

L143 ANSWER 2 OF 43 HCA COPYRIGHT 2005 ACS on STN
129:151119 Secondary nonaqueous-electrolyte battery. Ito, Shuji; Murata, Toshihide; Bito, Yasuhiko; Toyoguchi, Yoshinori (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 853347 A1 **19980715**, 51 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1997-122297 19971217. PRIORITY: JP 1996-341012 19961220; JP 1997-54947 19970310; JP 1997-163285 19970604.

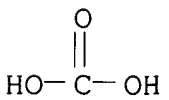
6124057

AB The anode active material of the title battery having a high capacity and excellent cycling characteristics comprises a salt of a metal or a semimetal and a compd. selected from the oxo acids, HSCN, NCCN, and HCNO, where each oxo acid comprises an element selected N, S, C, B, P, Se, Te, W, Mo, Ti, Cr, Zr, Nb, Ta, Mn, and V, the salts of the oxo acids of P and B being restricted to hydrogen phosphates and hydrogen borates.

IT **1633-05-2**, Strontium carbonate
(**anode** active material for lithium-ion batteries)

RN 1633-05-2 HCA

CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-62
ICS H01M004-48; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 306-61-6, Magnesium thiocyanate 471-34-1, Calcium carbonate, uses

513-77-9, Barium carbonate 513-78-0, Cadmium carbonate 513-79-1, Cobalt carbonate CoCO3 538-17-0, Aluminum thiocyanate 542-62-1, Barium cyanide 542-83-6, Cadmium cyanide 542-84-7, Cobalt cyanide (Co(CN)2) 546-93-0, Magnesium carbonate 557-19-7, Nickel cyanide (Ni(CN)2) 557-21-1, Zinc cyanide 557-42-6, Zinc thiocyanate 563-71-3, Ferrous carbonate 592-01-8, Calcium cyanide 592-05-2, Lead cyanide Pb(CN)2 592-87-0, Lead thiocyanate 598-62-9, Manganese carbonate 598-63-0, Lead carbonate 865-38-3, Cadmium thiocyanate 1184-64-1, Cupric carbonate **1633-05-2**, Strontium carbonate 1948-47-6, Iron cyanide (Fe(CN)2) 2090-64-4, Magnesium bicarbonate 2092-16-2, Calcium thiocyanate 2092-17-3, Barium thiocyanate 2768-97-0, Indium thiocyanate 3017-60-5 3227-61-0 3227-62-1 3251-23-8, Cupric nitrate 3333-67-3, Nickel carbonate 3486-35-9, Zinc carbonate 3602-20-8, Tin thiocyanate 3999-98-2 4100-56-5, Magnesium cyanide 4367-08-2, Copper cyanide (Cu(CN)2) 4756-59-6 4756-65-4, Aluminum isocyanate 5702-63-6, Stibinetricarbonitrile 6010-09-9 6449-00-9, Chromium carbonate Cr2(CO3)3 6860-10-2, Calcium dicyanate 7446-10-8, Lead sulfite PbSO3 7446-14-2, Lead sulfate 7446-15-3 7487-88-9, Magnesium sulfate, uses 7488-51-9 7488-55-3 7720-78-7, Ferrous sulfate 7727-43-7, Barium sulfate 7733-02-0, Zinc sulfate 7757-86-0 7757-88-2, Magnesium sulfite 7757-95-1, Nickel sulfite NiSO3 7758-97-6, Lead chromate PbCrO4 7758-98-7, Copper sulfate, uses 7759-00-4 7759-01-5, Lead tungsten oxide (PbWO4) 7759-02-6, Strontium sulfate 7778-18-9, Calcium sulfate 7779-86-4 7779-88-6, Zinc nitrate 7784-22-7 7785-87-7, Manganese sulfate 7786-81-4, Nickel sulfate 7787-39-5, Barium sulfite 7787-41-9 7787-68-0, Bismuth sulfate 7789-14-2 7789-82-4, Calcium molybdate CaMoO4 7790-75-2, Calcium tungsten oxide (CaWO4) 7790-83-2 7790-85-4, Cadmium tungsten oxide (CdWO4) 10022-31-8, Barium nitrate 10026-23-0 10028-26-9 10031-38-6 10042-76-9, Strontium nitrate 10043-01-3, Aluminum sulfate Al2(SO4)3 10048-98-3 10099-74-8 10099-79-3, Lead vanadium oxide (PbV2O6) 10101-52-7, Zirconium silicate (Zr0.5(SiO4)0.5) 10101-53-8, Chromium sulfate 10101-96-9 10102-02-0, Zinc nitrite 10124-36-4, Cadmium sulfate 10124-37-5, Calcium nitrate 10124-43-3, Cobalt sulfate 10124-53-5 10141-05-6 10174-28-4, Chromium tin oxide (CrSnO4) 10190-55-3, Lead molybdenum oxide (PbMoO4) 10214-40-1 10257-55-3, Calcium sulfite 10294-58-3 10325-94-7 10343-61-0, Titanium sulfate Ti2(SO4)3 10361-44-1 10377-57-8 10377-60-3, Magnesium nitrate 10377-66-9 11093-84-8, Indium titanium oxide (In2TiO5) 11120-61-9, Chromium tin oxide (CrSn2O6) 12013-45-5, Calcium niobium oxide (CaNb2O6) 12013-47-7, Calcium zirconium oxide (CaZrO3) 12013-95-5, Cadmium chromium oxide (CdCr2O4) 12014-14-1, Cadmium titanium oxide (CdTiO3) 12025-16-0, Germanium manganese oxide (GeMnO3) 12032-31-4, Magnesium zirconium oxide (MgZrO3) 12034-88-7, Lead niobium oxide (PbNb2O6) 12034-89-8,

Niobium strontium oxide (Nb2SrO6) 12036-39-4, Strontium zirconium oxide (SrZrO3) 12036-43-0, Titanium zinc oxide (TiZnO3) 12048-51-0, Bismuth titanium oxide (Bi2Ti2O7) 12048-52-1, Bismuth zirconium oxide (Bi2Zr3O9) 12050-35-0, Cadmium tantalum oxide (Cd2Ta2O7) 12056-04-1, Indium tantalum oxide (InTaO4) 12058-23-0, Molybdenum tin oxide (Mo2SnO8) 12059-64-2, Lead niobium oxide (Pb2Nb2O7) 12060-00-3, Lead titanate PbTiO3 12060-01-4, Lead zirconium oxide (PbZrO3) 12064-15-2, Gallium manganese oxide (Ga2MnO4) 12065-82-6, Lead tantalum oxide (Pb2Ta2O7) 12138-50-0, Calcium tungsten oxide (CaWO3) 12139-18-3, Cadmium manganese oxide (CdMnO3) 12139-23-0, Cadmium zirconium oxide (CdZrO3) 12143-37-2, Strontium tungsten oxide (SrWO3) 12143-52-1, Lead oxide selenate (Pb2O(SeO4)) 12160-57-5, Gallium niobium oxide (GaNbO4) 12163-26-7, Magnesium niobium oxide (MgNb2O6) 12163-45-0, Manganese strontium oxide (MnSrO3) 12169-18-5, Zinc zirconium oxide (ZnZrO3) 12169-20-9, Antimony tantalum oxide (SbTaO4) 12177-86-5, Calcium manganese oxide (CaMnO3) 12187-14-3, Cadmium niobium oxide (Cd2Nb2O7) 12201-66-0, Niobium zinc oxide (Nb2ZnO6) 12209-35-7, Manganese tin oxide (MnSnO3) 12209-43-7, Manganese tin oxide (Mn2SnO4) 12232-83-6, Bismuth chromium oxide (BiCrO3) 12251-86-4, Aluminum tantalum oxide (AlTaO4) 12258-25-2, Aluminum niobium oxide (AlNbO4) 12272-28-5, Bismuth niobium oxide (BiNbO4) 12272-29-6, Bismuth tantalum oxide (BiTaO4) 12274-06-5, Manganese zinc oxide (MnZnO3) 12292-47-6, Chromium indium oxide (CrInO3) 12311-81-8, Antimony vanadium oxide (SbVO4) 12337-20-1, Lead titanium oxide (PbTi3O7) 12340-07-7, Lead tungsten oxide (PbWO3) 12362-92-4, Niobium tin oxide (Nb2SnO6) 12362-93-5, Niobium tin oxide (Nb2Sn2O7) 12363-22-3, Tantalum tin oxide (Ta2Sn2O7) 12378-52-8, Gallium tantalum oxide (GaTaO4) 12379-00-9, Indium niobium oxide (InNbO4) 12421-98-6, Calcium tantalum oxide (Ca2Ta2O7) 12438-49-2, Magnesium tantalum oxide (Mg2Ta2O7) 12438-60-7, Lead manganese oxide (PbMnO3) 12440-09-4, Strontium tantalum oxide (Sr2Ta2O7) 12501-29-0, Tellurium tin oxide (Te3SnO8) 12588-16-8, Aluminum chromium oxide (AlCrO3) 12600-76-9, Tin zirconium oxide (SnZrO3) 13074-68-5, Indium cyanide In(CN)3 13092-66-5 13138-45-9, Nickel nitrate 13450-99-2 13451-01-9 13451-02-0, Strontium sulfite 13451-05-3, Strontium tungsten oxide (SrWO4) 13453-58-2 13453-65-1 13464-82-9 13466-24-5 13468-91-2, Lead carbonate (PB(HCO3)2) 13470-04-7, Strontium molybdate SrMoO4 13473-90-0, Aluminum nitrate 13477-23-1, Cadmium sulfite CdSO3 13478-08-5 13478-50-7 13494-90-1, Gallium nitrate 13494-91-2, Gallium sulfate Ga2(SO4)3 13530-50-2 13530-54-6 13530-56-8, Aluminum vanadium oxide (AlVO4) 13530-65-9, Zinc chromate 13566-06-8, Vanadium sulfate VSO4 13568-71-3, Manganese sulfite 13573-11-0, Magnesium tungsten oxide (MgWO4) 13573-13-2, Magnesium vanadium oxide (MgV2O6) 13587-24-1 13595-85-2, Bismuth molybdenum oxide (Bi2Mo3O12) 13595-86-3, Bismuth tungsten oxide

(Bi2WO6) 13595-87-4, Bismuth tungsten oxide (Bi2W3O12) 13596-21-9 13597-44-9, Zinc sulfite 13597-46-1 13597-54-1 13597-56-3, Tungsten zinc oxide (WZnO4) 13597-58-5, Strontium vanadium oxide (SrV2O6) 13598-37-3 13654-05-2 13689-92-4 13709-68-7 13718-59-7 13767-03-8, Magnesium molybdate MgMoO4 13767-32-3, Zinc molybdate ZnMoO4 13770-61-1 13773-83-6 13774-25-9 13780-03-5 13780-18-2 13814-56-7 13814-58-9 13814-59-0 13814-62-5 13819-17-5 13826-65-8 13826-70-5, Tin nitrate Sn(NO3)4 13845-15-3 13845-35-7 13847-12-6 13860-02-1 13912-55-5 13972-68-4, Cadmium molybdenum oxide (CdMoO4) 13977-75-8 14013-02-6, Copper sulfite CuSO3 14013-86-6, Ferrous nitrate 14019-91-1 14047-62-2, Aluminum nitrite Al(NO2)3 14059-33-7, Bismuth vanadium oxide (BiVO4) 14067-62-0 14312-01-7 14332-25-3 14332-34-4 14332-39-9 14332-59-3 14332-60-6 14355-35-2 14373-77-4 14455-29-9
(**anode** active material for lithium-ion batteries)

L143 ANSWER 4 OF 43 HCA COPYRIGHT 2005 ACS on STN Zinc battery
127:222992 Simplified zinc anode with multiple electrode assemblies. $Sr(OH)_2$
Charkey, Allen (Energy Research Corp., USA). U.S. US 5658694 A **19970819**, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 1996-721935 19960927.

AB The anode comprises 1st and 2nd Zn electrode assemblies sepd. by a porous hydrophobic element. Each of the Zn electrode assemblies includes a Zn active element and is devoid of any catalytic material for promoting O recombination by the Zn active element. Each Zn active element further comprises 1 of Ca(OH)2, Ba(OH)2, and Sr(OH)2. The space provided by the hydrophobic element itself promotes O recombination without the need of any catalytic material. Accordingly, the degree of O recombination is not significantly altered, while cost savings are achieved by eliminating the catalytic material.

IC ICM H01M004-38
INCL 429229000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1305-62-0, Calcium hydroxide (Ca(OH)2), uses 17194-00-2, Barium hydroxide (Ba(OH)2) 18480-07-4, Strontium hydroxide (**Sr(OH)2**)
(simplified zinc battery **anode** with multiple electrode assemblies and contg.)

L143 ANSWER 7 OF 43 HCA COPYRIGHT 2005 ACS on STN Zinc batt.
124:207242 Sealed Zn secondary battery and Zn anode with decreased solubility. Charkey, Allen (Energy Research Corporation, USA). Eur. Pat. Appl. EP 697746 A1 **19960221**, 9 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1995-113014 19950818. PRIORITY: US 1994-292614 19940818; US 1995-431556 19950501.

AB A Zn anode comprises a Zn active material (ZnO), Ba(OH)2 or Sr(OH)2, and a conductive matrix including a metallic oxide (PbO, Bi2O3, CdO, Ga2O3, Tl2O3) which is more electropos. than Zn. The anode is used in a Zn secondary battery having an electrolyte (KOH) whose electrolyte constituent is a low percentage of the electrolyte. The Zn anode is split into electrode assemblies sepd. by a porous hydrophobic element.

IT **18480-07-4**, Strontium hydroxide
(**anode**; sealed Zn secondary battery with decreased anode soly.)

RN 18480-07-4 HCA

CN Strontium hydroxide (Sr(OH)2) (9CI) (CA INDEX NAME)

HO—Sr—OH

IC ICM H01M004-24
ICS H01M010-34

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1304-76-3, Bismuth oxide, uses 1305-62-0, Calciumhydroxide, uses 1314-13-2, Zinc oxide, uses 1314-32-5, Thallium oxide 1317-36-8, Lead oxide, uses 7440-66-6, Zinc, uses 12024-21-4, Gallium oxide 17194-00-2, Bariumhydroxide **18480-07-4**, Strontium hydroxide
(**anode**; sealed Zn secondary battery with decreased anode soly.)

Alkaline batt.

L143 ANSWER 9 OF 43 HCA COPYRIGHT 2005 ACS on STN

117:195261 Alkaline batteries with mercury-free zinc alloy anodes. Uemura, Toyohide; Taniguchi, Takahiro (Mitsui Mining and Smelting Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 04196058 A2 **19920715** Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1990-322384 19901128.

AB The batteries have anodes prepd. from Hg-free Zn alloys, electrolyte, and 1-10 parts (based on 100 parts Zn) alkali metal hydroxide or alk. earth hydroxide additive. The additive prevents H generation caused by Zn corrosion.

IC ICM H01M004-42
ICS H01M004-06

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1305-62-0, Calcium hydroxide [Ca(OH)2], uses 1309-42-8, Magnesium hydroxide [Mg(OH)2] 1310-58-3, Potassium hydroxide, uses 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, uses 13327-32-7, Beryllium hydroxide (Be(OH)2) 17194-00-2, Barium hydroxide [Ba(OH)2] 18480-07-4, Strontium hydroxide [**Sr(OH)2**]
(**anodes** contg., mercury-free zinc alloy, for alk. batteries)

Na(NH2) but sodium batt.

L143 ANSWER 12 OF 43 HCA COPYRIGHT 2005 ACS on STN
115:53450 Alkali metal (sodium) battery with coated (.beta.-alumina) solid electrolyte. Weber, Neill; Jones, Ivor Wynn (Chloride Silent Power Ltd., UK). PCT Int. Appl. WO 9106133 A1 **19910502**, 26 pp. DESIGNATED STATES: W: BG, CA, GB, JP, KR, SU, US; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1990-GB1584 19901012. PRIORITY: GB 1989-23032 19891012.

AB Flaws and all cracks in the surface of the solid electrolyte of the title battery are filled with a material, which is a liq. at the battery-operating temp., electronically insulating or semiconductive, and conductive to alkali metal cations; wets the electrolyte; and forms an interface with the alkali metal. In the case of a Na battery with a .beta.-alumina electrolyte, this coating liq. may be NaNH2, or a reagent which reacts with Na to form NaNH2. NaNH2 is present in Na anode at 0.1-10 and preferably 0.5-5 g/100 mL Na. In making of the battery, the .beta.-alumina electrolyte and/or Na of the battery may be exposed to NH3. NaNH2 assures good wetting of the electrolyte on the initial warm up of the batteries, without the need of a long temp. soak at 350.degree. or cycling at this temp., which is normally required in prior art batteries to promote wetting.

IT **7782-92-5**, Sodium amide
(**anode** contg., sodium, for good wetting of .beta.-alumina electrolyte in batteries)

RN 7782-92-5 HCA

CN Sodium amide (Na(NH2)) (9CI) (CA INDEX NAME)

H_2N-Na

IC ICM H01M010-39

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT **7782-92-5**, Sodium amide 12164-94-2, Ammonium azide
(**anode** contg., sodium, for good wetting of .beta.-alumina electrolyte in batteries)

Zn batt.

L143 ANSWER 15 OF 43 HCA COPYRIGHT 2005 ACS on STN
107:99755 Zinc alkaline batteries. Furukawa, Sanehiro; Inoue, Kenji; Nogami, Mitsuzo (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 62064061 A2 **19870320** Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-204648 19850917.

AB ZnO- or Zn-based battery anode active material is mixed with Sr(OH)2 and .gtoreq.1 oxide or hydroxide of metals having nobler redox potential than Zn to increase the efficiency and extend the battery cycle life. A mixt. of ZnO 80, Zn 10, In(OH)3 5, and Sr(OH)2 5% was kneaded with H2O and PTFE and formed into sheets, which were bonded

to a collector plate to prep. an anode. A battery having this anode and Ni cathode had a long cycle life.

IT **18480-07-4**
(**anodes** contg., zinc, for alk. batteries)

RN 18480-07-4 HCA

CN Strontium hydroxide (Sr(OH)2) (9CI) (CA INDEX NAME)

HO—Sr—OH

IC ICM H01M004-42

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT **18480-07-4** 20661-21-6, Indium hydroxide
(**anodes** contg., zinc, for alk. batteries)

L143 ANSWER 18 OF 43 HCA COPYRIGHT 2005 ACS on STN L/A batt.

104:8318 Anode for lead acid battery. Hayashi, Toshiaki (Japan Storage Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 60167266 A2 **19850830** Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1984-22579 19840208.

AB Finely powd. Ba salt and Sr salt are uniformly dispersed in the anode active material of Pb-acid battery. SrSO4 and BaSO4 are used at a (0.5-5.0):100 wt. ratio. The combination of the additives enhances the favorable nucleating effect of BaSO4 for PbSO4 when the additives are uniformly dispersed in the active material. Thus, Pb powder was mixed with 0.5% of a mixt. of 100 BaCO3 and 0.48 parts SrCO3 to obtain a BaSO4:SrSO4 ratio in the active material of 100:0.5. Cycle life of batteries having anodes prepd. from this material was 350 cycles vs. 285 cycles for a control battery whose **anode** was prepd. without **SrCO3**.

IC ICM H01M004-57

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L143 ANSWER 25 OF 43 HCA COPYRIGHT 2005 ACS on STN Alkaline batt.

86:109142 Alkaline battery. Momyer, William R. (Lockheed Missiles and Space Co., Inc., USA). Ger. Offen. DE 2621931 **19761209**, 18 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1976-2621931 19760517.

AB A battery comprises an **anode** from a metal highly reactive with H2O, e.g., Li, an insulating separator film formed on the **anode** in presence of H2O, and an alk. electrolyte contg. H2O2, Na2O2, **NaO2**, Li2O2, K2O2, etc. The peroxide additives improve the battery efficiency by decreasing the **anode** sensitivity to the changes in electrolyte concn., flow rate, and temp.

IC H01M004-48

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

L143 ANSWER 28 OF 43 HCA COPYRIGHT 2005 ACS on STN Zn electrode.
80:22148 Anode for storage batteries. Kandler, Ludwig; Wabner, Dietrich; Krienke, Wolfgang; Treptow, Wolfram; Fritz, Heinz P. (Rheinisch-Westfaelisches Elektrizitaetswerk A.-G.). Ger. Offen. DE 2219129 **19731108**, 17 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1972-2219129 19720419.

AB Anodes of low dendritic growth for storage batteries consisted of a Cu grid, coated on both sides with 3 layers contg. Zn and Sr(OH)2 and (or) Ba(OH)2. The 1st, 2nd, and 3rd layer was rich, poor in Zn, and free of Zn, resp., and in a porous plastic layer. The Zn-hydroxide layers were coated on the Cu grid mech. and (or) by electroplating.

IT **18480-07-4**
(**anodes**, coatings of zinc and, on copper grid, for secondary battery)

RN 18480-07-4 HCA

CN Strontium hydroxide (Sr(OH)2) (9CI) (CA INDEX NAME)

HO—Sr—OH

IC H01M

CC 77-2 (Electrochemistry)

IT 17194-00-2 **18480-07-4**
(**anodes**, coatings of zinc and, on copper grid, for secondary battery)

No

L143 ANSWER 31 OF 43 HCA COPYRIGHT 2005 ACS on STN
64:65317 Original Reference No. 64:12192b-d The titanium electrode in oxidizing media. Khairy, E. M.; El-Khatib, M. M. (Cairo Univ.). Journal of Chemistry of the United Arab Republic, 8(1), 1-18 (English) **1965**. CODEN: JUARAK. ISSN: 0449-2285.

AB The electrochem. behavior of Ti in oxidizing media, through electrode potential and anodic polarization measurements, was examd. at 25.degree.. Expts. with spectroscopically pure rods were made in unstirred aerated solns. (A) and in solns. stirred with N (B) or with H (C). Potentials were measured vs. a S.C.E. Several oxidizing media including HClO4, NaOH, and Na2O2 were used. Anodic polarization expts. were conducted in these solns. In a few cases KF was added to exam. its effect. The potentials obtained with the Ti electrode, although showing a certain degree of irreproducibility, attain steady values after 2-4 hrs. from immersion. These steady potentials were approached from less pos. values when untreated electrodes were used, and from more pos. values when electrodes were pretreated out of contact with atm. O. The results in perchlorate media revealed appreciable corrosion, becoming greater in solns. stirred with H and still more pronounced when electrodes were subjected to redn. by H and high vacuum.

Anodic polarization at low and high c.ds. showed that passivity was more readily achieved in dil. solns., demonstrating enhanced corrosion in concd. solns. The potential-pH plots obtained in NaOH and Na2O2 were characterized by sharp breaks at about pH 13. Below pH 13 the behavior was supposed to be due to the system: adsorbed O/protective oxide/metal/soln., chem. passivity being presumably attained in such alk. media. Above pH 13 the oxide was considered to react with the soln. yielding bititanates. Passivity was acquired through anodic polarization in NaOH solns. and was attributed to the formation of protective films of a peroxy compd. In dil. Na2O2 solns. passivity was attained at lower c.ds., whereas active potentials were achieved in more concd. solns.

IT **1313-60-6**, Sodium peroxide
(titanium **anode** polarization in solns. contg.)
RN 1313-60-6 HCA
CN Sodium peroxide (Na2(O2)) (8CI, 9CI) (CA INDEX NAME)

Na—O—O—Na

CC 15 (Electrochemistry)
IT 1310-73-2, Sodium hydroxide **1313-60-6**, Sodium peroxide
7601-90-3, Perchloric acid
(titanium **anode** polarization in solns. contg.)

=> D L144 1-41 TI

L144 ANSWER 1 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Manufacture of high-energy low-consumption long-life environment-protecting lead acid batteries

L144 ANSWER 2 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Hydrogen-absorbing alloy for battery **anode** for alkaline storage battery

L144 ANSWER 3 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Thermodynamic properties of Sr-doped LaMnO3 perovskite in the LaSrMnO system

L144 ANSWER 4 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Behavior of titanium species in molten Li2CO3-Na2CO3 and Li2CO3-K2CO3 under **anodic** and cathodic conditions. I - thermodynamic predictions at 550-750.degree.C

L144 ANSWER 5 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Solid electrolyte fuel cell anodes having porous structure

L144 ANSWER 6 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Electrochemical removal of lead from aluminum using fused salts

L144 ANSWER 7 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Effluent treatment in a process for producing chlorine dioxide from chloric acid

L144 ANSWER 8 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Cyclic voltammetric behavior of platinum in dried and wet nitrates melt

L144 ANSWER 9 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Reactivity of superoxide toward iron(II) complexes with pentadentate and hexadentate ligands derived from cyclononane

L144 ANSWER 10 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Solid-state methane-air fuel cell and its manufacture

L144 ANSWER 11 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Fuel cell with means for recovery hydrogen

L144 ANSWER 12 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Secondary nickel-hydrogen batteries

L144 ANSWER 13 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Anodes for alkaline batteries

L144 ANSWER 14 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Catalyst-caoted electrode with a low overvoltage for oxygen evolution in the electrolysis of alkaline water

L144 ANSWER 15 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Use of thallium(I) probe for identifying sites of mobile cations in glass during electrolysis

L144 ANSWER 16 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Some comparative surface studies of two types of nickel matrix cathode

L144 ANSWER 17 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Ion migration study in a sodium borate glass: proposal of a new oxide transport

L144 ANSWER 18 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Forming a silicate coating on metal

L144 ANSWER 19 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Novel semiconducting electrodes for the photosensitized electrolysis

of water

L144 ANSWER 20 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Electrolysis with sorption of the gas evolved

L144 ANSWER 21 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Hydrogen peroxide

L144 ANSWER 22 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Use of magnetite for anodic grounders of cathodic-protection systems

L144 ANSWER 23 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Experiences with electrochemical oxygen probes in sodium loops

L144 ANSWER 24 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Apparatus for the direct generation of electricity

L144 ANSWER 25 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Battery having a cathode of an alkali metal superoxide

L144 ANSWER 26 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Electrochemical corrosion investigations in an eutectic alkali metal sulfate melt

L144 ANSWER 27 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Role of oxygen in **anodic** phenomena during electrolysis of cryolite solutions

L144 ANSWER 28 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Manufacture of cathodes for electron tubes

L144 ANSWER 29 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Magnetite anode of the system Fe3O4-SiO2-MO

L144 ANSWER 30 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Conditions under which incandescence of oxide particles is produced by electron bombardment with the participation of barium

L144 ANSWER 31 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Photoelectric emission from cathodes coated with strontium oxide

L144 ANSWER 32 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Anodic depolarization in the production of sodium by electrolysis of fused chlorides

L144 ANSWER 33 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Possible galvanic cell method for monitoring the activity of O in a hot-trapped Na coolant circuit

L144 ANSWER 34 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Thermionic cathode

L144 ANSWER 35 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Evolution of gases and ions from different anodes under electron bombardment

L144 ANSWER 36 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Direct electrochemical synthesis of potassium dioxide

L144 ANSWER 37 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI The electrolysis of vacuum-tube glass stem. II. Oxidation at the positive electrode

L144 ANSWER 38 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Preparation of perbromates

L144 ANSWER 39 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI The oxidation of lithium and the alkaline earth metals in liquid ammonia

L144 ANSWER 40 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI The electrolysis of molten Na2SO4 I

L144 ANSWER 41 OF 41 HCA COPYRIGHT 2005 ACS on STN
TI Search for radiation accompanying the scattering of comparatively slow electrons at the surface of incandescent solids

=> D L144 1,2,5,12,13,19,25,28,34 CBIB ABS HITSTR HITIND

L144 ANSWER 1 OF 41 HCA COPYRIGHT 2005 ACS on STN L/A batt.
134:240106 Manufacture of high-energy low-consumption long-life environment-protecting lead acid batteries. Lu, Anmin; Wang, Xiaonan; Lu, Junfeng; Wang, Zheng (Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1263362 A 20000816, 18 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 1999-102292 19990211.
AB The batteries are manufd. by: prepg. cathode active mass paste and **anode** active mass paste, prepg. forming soln, forming the electrodes, prepg. the battery electrolyte, charging the battery, and sealing; where the **anode** paste contg. n-C12H25NH2, 2-benzoimidazolethiol, 3,5-diaminobenzoic acid, nicotinic acid, nicotinic amide, 8-hydroxyquinoline, and/or other metal chelating agent; the cathode active mass paste contains hydroxylamine sulfate, 8-hydroxyquinoline, and/or other metal chelating agent; the formation is carried out in the battery case, the forming soln. is

added in several steps with the soln. concn. increases with each step, the initial forming soln. contains 6-aminopurine, acetoacetanilide, o-aminobenzoic acid, and 8-hydroxyquinoline-5-sulfonic acid and the solns. added later contain 6-aminopurine, acetoacetanilide, and o-aminobenzoic acid; the electrolyte has a 1st H2SO4 soln. contg. acetanilide, sulfamidine, 8-hydroxyquinoline or its sulfate salt, 2-aminophenol-4-sulfonamide, or sulfamide and a 2nd SiO44- sol contg. tannic acid, benzoic acid or its Na salt, hydroquinone or quinone, Na pyrophosphate, benzeneacetamide, NaOH or KOH, Na2O2 or **K2O2**, 8-hydroxyquinoline, or other metal chelating agents.

IT **17014-71-0**, Potassium peroxide
(additives in electrode active mass pastes and forming soln. and electrolytes for manuf. of lead acid batteries)

RN 17014-71-0 HCA

CN Potassium peroxide (K2(O2)) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

K—O—O—K

IC ICM H01M010-12

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 59-67-6, Nicotinic acid, uses 63-74-1, Sulfanilamide 65-85-0, Benzoic acid, uses 73-24-5, 6-Aminopurine, uses 84-88-8, 8-Hydroxyquinoline-5-sulfonic acid 98-32-8, 2-Aminophenol-4-sulfonamide 98-92-0, Nicotinic acid amide 102-01-2, Acetoacetanilide 103-81-1, Benzeneacetamide 103-84-4, Acetanilide 106-51-4, Quinone, uses 118-92-3, o-Aminobenzoic acid 124-22-1, n-Dodecylamine 148-24-3, 8-Hydroxyquinoline, uses 532-32-1, Sodium benzoate 535-87-5, 3,5-Diaminobenzoic acid 583-39-1, 2-Benzimidazolethiol 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses 1313-60-6, Sodium peroxide 7722-88-5, Sodium pyrophosphate 10193-36-9, Silicic acid 12385-08-9, Dihydroxybenzene **17014-71-0**, Potassium peroxide 52409-29-7, Sulfamidine
(additives in electrode active mass pastes and forming soln. and electrolytes for manuf. of lead acid batteries)

L144 ANSWER 2 OF 41 HCA COPYRIGHT 2005 ACS on STN Alkaline batt.

131:245573 Hydrogen-absorbing alloy for battery **anode** for alkaline storage battery. Kikuyama, Susumu; Ebihara, Takashi; Miyahara, Akiko; Wang, Xianglong; Yuasa, Kohji (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 944124 A1 **19990922**, 17 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1999-102022 19990201. PRIORITY: JP 1998-36977 19980219; JP 1998-73809 19980323; JP 1998-73824 19980323; JP 1998-73825 19980323; JP 1998-73826 19980323;

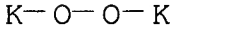
JP 1998-332399 19981124.

AB An alk. storage battery, e.g., a Ni-metal hydride battery, with excellent charge-discharge cycle life characteristics and high-rate discharge characteristics is prepd. using an **anode** from Mm-Ni hydrogen-absorbing alloy powders with modified surface structure. The battery **anode** comprises hydrogen-absorbing alloy powders contg. .gtoreq.1 rare earth element, Ni, and .gtoreq.1 transition metal, e.g., MmNi3.55Co0.75Mn0.4Al0.3, where the surface of the alloy has metallic Ni exposed at the surface, pores positioned between the exposed Ni sites, and a Ni-rich layer on the alloy surface contacting the pores. The powders are treated by grinding, followed by contacting with an alk. aq. (KOH) soln., then an acidic aq. (acetic acid) soln., followed by dehydrogenation to remove absorbed H2 using a peroxide or peroxodisulfate in the presence of acetate ions in aq. soln.

IT **17014-71-0**, Potassium peroxide
(dehydrogenating agents; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

RN 17014-71-0 HCA

CN Potassium peroxide (K2(O2)) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-38
ICS C01B003-00

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

ST hydrogen absorbing alloy **anode** alk battery

IT Secondary batteries
(alk.; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

IT Peroxides, uses
(dehydrogenating agents; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

IT Battery **anodes**
(hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

IT Alloys, uses
(hydrogen-absorbing; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

IT Peroxysulfates
(peroxydisulfates, dehydrogenating agents; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

IT 1313-60-6, Sodium peroxide 7722-84-1, Hydrogen peroxide, uses 7727-21-1 7775-27-1, Sodium peroxodisulfate 12031-80-0, Lithium peroxide **17014-71-0**, Potassium peroxide 18697-38-6, Peroxydisulfuric acid, dilithium salt

(dehydrogenating agents; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

IT 64-19-7, Acetic acid, uses 1310-58-3, Potassium hydroxide, uses
(hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

IT 181147-99-9
(hydrogen-absorbing, **anodes**; hydrogen-absorbing alloy for battery **anode** for alk. storage battery)

Fuel cell

L144 ANSWER 5 OF 41 HCA COPYRIGHT 2005 ACS on STN

127:320968 Solid electrolyte fuel cell anodes having porous structure. Nagata, Masakatsu; Iwazawa, Tsutomu; Ono, Mikiyuki; Nakajima, Takenori; Yamaoka, Satoru (Fujikura Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09274921 A2 **19971021** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-106287 19960403.

AB The porous-film fuel anodes are manufd. by applying a Ni (or NiO)-based material powder contg. .gtoreq.1 oxide selected from MgO, CaO, SrO, Y2O3, La2O3, Sc2O3, and Al2O3 or .gtoreq.1 selected from Ti and W to the solid electrolyte and sintering. Alternatively a material powder consists of Ti or W particles coated with Ni (or NiO). The fuel anodes keep high elec. cond. and fuel gas permeability.

IC ICM H01M004-86
ICS H01M004-90; H01M008-02; H01M008-12

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses 1312-81-8, Lanthanum oxide (La2O3) 1314-11-0, Strontium oxide (**SrO**), uses 1314-36-9, Yttria, uses 1344-28-1, Alumina, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 12060-08-1, Scandium oxide (Sc2O3)
(sintering inhibitor, **anodes** contg.; solid electrolyte fuel cell anodes having porous structure for high elec. cond. and gas permeability)

NiMH batt.

L144 ANSWER 12 OF 41 HCA COPYRIGHT 2005 ACS on STN

112:122271 Secondary nickel-hydrogen batteries. Sugano, Kenichi; Kanda, Motoi; Sato, Juji; Hayashida, Hirotaka (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 01283774 A2 **19891115** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-111479 19880510.

AB Electrolyte for Ni/H-absorbing alloy batteries contain an O donor. The donor is preferably an oxide or peroxide. The donor prevents accumulation of H in the **anode** in initial charge-discharge cycles of the batteries, and increases the battery life. H2O2, sealed in polyamide-coated cellulose acetate microcapsules was used as the donor in examples.

IT **17014-71-0**, Potassium peroxide
(oxygen source, electrolytes contg., for hydrogen-nickel batteries, for long lifetime)

RN 17014-71-0 HCA
CN Potassium peroxide (K2(O2)) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

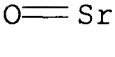
K—O—O—K

IC ICM H01M010-26
ICS H01M010-30
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1305-79-9, Calcium peroxide 7722-84-1, Hydrogen peroxide, uses and miscellaneous **17014-71-0**, Potassium peroxide
(oxygen source, electrolytes contg., for hydrogen-nickel batteries, for long lifetime)

L144 ANSWER 13 OF 41 HCA COPYRIGHT 2005 ACS on STN Alkaline batt.
111:217222 Anodes for alkaline batteries. Nakamura, Kyonobu; Uemura, Toyohide (Mitsui Mining and Smelting Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01187770 A2 **19890727** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1988-10787 19880122.
AB Alk. earth oxide(s) are added at 0.01-5.0 wt.% of Zn in a Zn-electrolyte mixt. for use in the title anodes. These anode have suppressed H evolution and batteries using these anodes have longer discharge duration than control batteries.
IC ICM H01M004-42
ICS H01M004-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1304-56-9, Beryllium oxide (BeO) 1305-78-8, Calcium oxide, uses and miscellaneous 1309-48-4, Magnesium oxide, uses and miscellaneous 1314-11-0, Strontium oxide (**SrO**), uses and miscellaneous
(**anodes** contg., zinc amalgam, for batteries)

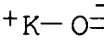
L144 ANSWER 19 OF 41 HCA COPYRIGHT 2005 ACS on STN NO
87:154857 Novel semiconducting electrodes for the photosensitized electrolysis of water. Augustynski, J.; Hinden, J.; Stalder, C. (Lab. Electrochem. Appl. Chem., Univ. Geneva, Geneva, Switz.). Journal of the Electrochemical Society, 124(7), 1063-4 (English) **1977**. CODEN: JESOAN. ISSN: 0013-4651.
AB Novel semiconducting electrodes based on polycryst. TiO2 are formed by mixed TiO2-M2O3 (M is Al, Ga, Eu, B) or TiO2-SrO deposits on Ti substrates. The spectral responses of the photoanodes are similar to that of the single-crystal TiO2 electrode, showing that the bandgap of TiO2 is not modified by the doping with Al3+, Ga3+, Eu3+, B3+, or Sr2+. However, high quantum efficiencies are maintained for these electrodes up to very large c.ds. in contrast to the single-crystal TiO2.
IT **1314-11-0**, uses and miscellaneous
(**anodes** contg., photoelectrochem.-cell titania, quantum

efficiency and spectral responses of)
RN 1314-11-0 HCA
CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 1303-86-2, uses and miscellaneous 1308-96-9 **1314-11-0**, uses and miscellaneous 1344-28-1, uses and miscellaneous 12024-21-4
(**anodes** contg., photoelectrochem.-cell titania, quantum efficiency and spectral responses of)

L144 ANSWER 25 OF 41 HCA COPYRIGHT 2005 ACS on STN No
72:85660 Battery having a cathode of an alkali metal superoxide. Trimmer, Louis E.; Cover, Hunter H., Jr. (Sundstrand Corp.). U.S. US 3489613 **19700113**, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 1964-363401 19640429.
AB The battery or fuel cell includes a plastic container and 2 Al **anodes** and a cathode composed of solid **KO2**. The container is divided into 3 compartments by Teflon-coated steelscreens which serve as an ion-permeable interchange wall between the cathode situated in the central compartment and the 2 **anodes** placed, one each, in the side compartments. The electrolyte is KOH. The container lid is provided with Cu-lined ports which serve as gas vents and exists for elec. connections. The reaction at the cathode is assumed to be 2 **KO2** + H2O .fwdarw. 2KOH + 3/2 O2 and at the **anode** 2 Al + 3/2 O2 .fwdarw. Al2O3, giving an overall cell reaction of 2 **KO2** + H2O + 2 Al .fwdarw. 2 KOH + Al2O3. K2Al2O4 may also form (2 KOH + Al2O3 .fwdarw. K2Al2O4 + H2O) returning an equiv. amount of H2O to the electrolyte soln.
IT **12030-88-5**
(cathodes, for fuel cells)
RN 12030-88-5 HCA
CN Potassium superoxide (K(O2)) (9CI) (CA INDEX NAME)



IC H01M
INCL 136083000
CC 77 (Electrochemistry)
IT **12030-88-5**
(cathodes, for fuel cells)

L144 ANSWER 28 OF 41 HCA COPYRIGHT 2005 ACS on STN No
64:48432 Original Reference No. 64:9064a-d Manufacture of cathodes for electron tubes. Maurer, Dean W.; Pleass, Charles M. (Western Electric Co., Inc.). BE 652784 **19641231**, 19 pp. (Unavailable). PRIORITY: US; 19630919.

AB Electron-tube cathodes can have emissions of 48 ma. at 750.degree. if the Ni base is coated with discrete particles of Ba-Sr, which are themselves coated with W, Mo, Ni, or Co. The process can be carried out by placing BaO2 and **SrO2** in a passive Ni vessel and heating it in a quartz tube in a vacuum furnace for several hrs. at 900.degree.. The product is crushed in a Pyrex crusher with Al2O3 bars for 36 hrs. and the powder of <37 .mu. is charged to a fluidized-bed reactor which is fluidized with Ni(CO)4 and H. The column is operated at 100.degree. for 20 hrs. to form discrete particles of 86% Ba-Sr, coated with 14% Ni. Ni with 0.1% Zr is formed into cathode bases and is degreased with steam, then dried with N and ultrasonic waves. They are washed with deionized water, dried in air at 110.degree. for 15 min., oxidized in air at 400.degree. for 20 min., and reduced in a moist H atm. at 1050.degree. for 30 min. They are then mounted to be coated in a plasma jet arc to a thickness of 0.0762 mm. with the Ba-Sr-Ni coating. The plasma jet is H. The coated bases are now heated 15 min. at 800.degree. in a H atm. and compressed at 70 kg./cm.2 They are then sintered in a Mo container and H atm. at 1000.degree. for 15 min. Ba-Sr carbonates can also be used, but they have to be dispersed in amyl acetate and coated with Ni in an oil bath.

CC 9 (Electric and Magnetic Phenomena)

IT Cathodes and(or) **Negative electrodes**
(electron-tube (including oxide-coated, etc.), from Ni coated with alk. earth oxides and metals)

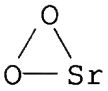
L144 ANSWER 34 OF 41 HCA COPYRIGHT 2005 ACS on STN No
54:85122 Original Reference No. 54:16196i,16197a Thermionic cathode. Gal, Imre; Nagel, Ferenc; Oldal, Endre (Egyesult Izzolampa es Villamossagi R. T.). DE 1031894 **19580612** From: C.Z. 1959,3935.. (Unavailable). APPLICATION: DE .

AB The activating substance, consisting of at least 1 peroxide of alk. earths, esp. of BaO2, is formed and sintered with a porous material and with a substance which binds as solids the products of the decompn. of the peroxides. Examples include the peroxides of Ba, Sr, and Ca in a mole ratio of 2:1:2; Al, Zr, Ti, Si, Mg, Be, B, or its alloys; or W silicide or boride.

IT **1314-18-7**, Strontium peroxide
(cathodes (thermionic) activated with)

RN 1314-18-7 HCA

CN Strontium peroxide (Sr(O2)) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



INCL 21G
CC 3 (Electronic Phenomena and Spectra)
IT Cathodes and(or) **Negative electrodes** (electron-tube (including oxide-coated, etc.), with alk. earth peroxides as activators)
IT 1304-29-6, Barium peroxide **1314-18-7**, Strontium peroxide (cathodes (thermionic) activated with)

=> D L145 1-19 TI

L145 ANSWER 1 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Rechargeable spinel **lithium batteries** with greatly improved elevated temperature cycle life

L145 ANSWER 2 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous** electrolyte **battery**

L145 ANSWER 3 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI **Electrode** active mass compositions, polymer electrolyte matrix compositions, and manufacture of **lithium** ion polymer **batteries** using them

L145 ANSWER 4 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI **Lithium** secondary **battery** with high safety property

L145 ANSWER 5 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous** electrolyte **batteries**

L145 ANSWER 6 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI **Electrode** active materials for **lithium** ion secondary **battery**

L145 ANSWER 7 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous** electrolyte **batteries**

L145 ANSWER 8 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI High-temperature stable secondary **nonaqueous**-electrolyte **battery** and its manufacture

L145 ANSWER 9 OF 19 HCA COPYRIGHT 2005 ACS on STN

TI Secondary **nonaqueous**-electrolyte **battery** and its **anode**

L145 ANSWER 10 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Manufacture of rock salt-structure **lithium** ferrite by ion exchanging in solvothermal treatment

L145 ANSWER 11 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI **Lithium** transition metal composite oxides and **nonaqueous** secondary **batteries** using them

L145 ANSWER 12 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Fluorine-containing **lithium** salts and silicates for **nonaqueous** electrolyte secondary **batteries**

L145 ANSWER 13 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous** electrolyte **batteries** containing salt additives

L145 ANSWER 14 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous** secondary **batteries** with sheet-type **electrodes** containing salt thin films

L145 ANSWER 15 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous** electrolyte **batteries**

L145 ANSWER 16 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous** electrolyte **batteries** with **lithium** containing manganese oxide **cathodes**

L145 ANSWER 17 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous**-electrolyte **lithium batteries** with improved **anodes**

L145 ANSWER 18 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous battery**

L145 ANSWER 19 OF 19 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous batteries** with carbonaceous **anode** supports

=> D L145 1-9,11-19 CBIB ABS HITSTR HITIND

L145 ANSWER 1 OF 19 HCA COPYRIGHT 2005 ACS on STN NO SrO
137:387146 Rechargeable spinel **lithium batteries** with greatly improved elevated temperature cycle life. Zhang, Meijie; Wang, Yu; Reimers, Jan Naess; Gee, Michael (E-One Moli

Energy (Canada) Limited, Can.). U.S. US 6489060 B1 20021203, 18 pp., Cont.-in-part of U.S. Ser. No. 318,854, abandoned. (English). CODEN: USXXAM. APPLICATION: US 2000-484399 20000114. PRIORITY: US 1999-318854 19990526.

AB The loss in delivered capacity (capacity fade) after cycling **non-aq.** rechargeable **lithium** manganese oxide **batteries** at elevated temps. can be greatly reduced by depositing a small amt. of certain foreign metal species on the surface of spinel in the **cathode**. In particular the foreign metal species are from compds. having either bismuth, lead, lanthanum, barium, zirconium, yttrium, strontium, zinc or magnesium. The foreign metal species are introduced to the surface of spinel by moderately heating either an aq. treated mixt. or a dry mixt. of ready-made spinel and the foreign metal compd.

IT **39457-42-6, Lithium** manganese oxide
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)

RN 39457-42-6 HCA

CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

IT **1314-11-0**, Strontium oxide, uses
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)

RN 1314-11-0 HCA

CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O=Sr

IC ICM H01M004-50
ICS H01M004-58; H01M006-00

INCL 429224000; 429231100; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery lithium** spinel secondary improved temp cycle life

IT Oxidation
(alc.; rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)

IT Secondary **batteries**
(**lithium**; rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle

life)
IT Carbonaceous materials (technological products)
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
IT 301-04-2, Lead acetate 557-34-6, Zinc acetate 7439-95-4D, Magnesium, compd. 7440-24-6D, Strontium, compd. 7440-39-3D, Barium, compd. 7440-65-5D, Yttrium, compd. 7721-01-9, Tantalum pentachloride 10026-12-7, Niobium pentachloride 10361-44-1, Bismuth nitrate 12027-67-7, Ammonium molybdate 13826-66-9, Zirconyl nitrate 14017-46-0, Lanthanumperchlorate
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
IT 64-17-5, Ethanol, processes 67-56-1, Methanol, processes
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate 7782-42-5, Graphite, uses 21324-40-3, **Lithium** hexafluorophosphate **39457-42-6**, **Lithium** manganese oxide
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)
IT 1304-28-5, Barium oxide, uses 1304-76-3, Bismuth oxide, uses 1309-48-4, Magnesium oxide, uses 1312-81-8, Lanthanum oxide **1314-11-0**, Strontium oxide, uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-36-9, Yttrium oxide, uses 1335-25-7, Lead oxide
(rechargeable spinel **lithium batteries** with greatly improved elevated temp. cycle life)

L145 ANSWER 2 OF 19 HCA COPYRIGHT 2005 ACS on STN No SrO
133:240636 **Nonaqueous** electrolyte **battery**. Tomita, Takashi; Ojima, Hideaki; Ishino, Kinichi; Kondo, Takayuki (Sony Corporation, Japan). Eur. Pat. Appl. EP 1039567 A1 20000927, 11 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-106324 20000323. PRIORITY: JP 1999-82375 19990325.
AB A **nonaq**. electrolyte **battery** having improved low temp. characteristics and preservation characteristics includes a neg. **electrode** contg. a carbon material as a neg. **electrode** active material, a pos. **electrode** contg. a pos. **electrode** active material and which is arranged facing the neg. **electrode** and a **nonaq**. electrolyte arranged between the neg. and pos. **electrodes**. The neg. **electrode** contains a material not doped with **lithium** and/or not releasing **lithium** in an amt. of not less than 20 wt% and not larger than 40 wt% based on the neg.

electrode active material.
IT **1314-11-0**, Strontia, uses
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)
RN 1314-11-0 HCA
CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O=Sr

IC ICM H01M004-02
ICS H01M004-62; H01M004-58; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery nonaq** electrolyte
IT Carboxylic acids, uses
(esters; **nonaq.** electrolyte **battery** with improved low-temp. characteristics)
IT **Battery anodes**
Battery electrolytes
Primary **batteries**
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)
IT Carbonaceous materials (technological products)
Ethers, uses
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)
IT Rare earth oxides
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)
IT Fluoropolymers, uses
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)
IT Petroleum pitch
(precursor; **nonaq.** electrolyte **battery** with improved low-temp. characteristics)
IT 463-79-6D, Carbonic acid, esters, uses
(cyclic and chain; **nonaq.** electrolyte **battery** with improved low-temp. characteristics)
IT 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 7782-42-5, Graphite, uses 7791-03-9, **Lithium** perchlorate 14024-11-4, **Lithium** tetrachloroaluminate 14283-07-9, **Lithium** tetrafluoroborate 17347-95-4, **Lithium** hexafluorosilicate 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1, **Lithium** hexafluoroarsenate 33454-82-9, **Lithium** triflate 90076-65-6 132404-42-3
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)

IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses **1314-11-0**, Strontia, uses 1314-23-4, Zirconium oxide, uses 1314-36-9, Yttria, uses 1344-28-1, Alumina, uses 1345-13-7, Cerium oxide ce2o3 7631-86-9, Silica, uses 10034-77-2, Calcium silicate ca2sio4 12141-46-7, Aluminum silicate al2sio5
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)

IT 12190-79-3P, Cobalt **lithium** oxide colio2
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)

ALREADY OF RECORD (KITO et al.)

IT 24937-79-9, Pvdf
(**nonaq.** electrolyte **battery** with improved low-temp. characteristics)

print out

L145 ANSWER 3 OF 19 HCA COPYRIGHT 2005 ACS on STN

$NaHCO_3$

133:7062 **Electrode** active mass compositions, polymer electrolyte matrix compositions, and manufacture of **lithium** ion polymer **batteries** using them. Cho, Hun Kyu; Noh, Whan Jin (Samsung SDI Co., Ltd., S. Korea). Jpn. Kokai Tokkyo Koho JP 2000149922 A2 20000530, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-235660 19990823. PRIORITY: KR 1998-47289 19981105.

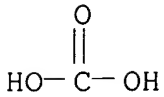
US 6372386

AB The **electrode** compns. comprise active mass, conductive agents, binders, and 5-30 wt.% thermally decompg. plasticizers, e.g., alkali metal carbonates, alk. earth carbonates. The polymer electrolyte matrix compns. comprise polymers and 10-60 wt.% the thermally decompg. plasticizers. The title **batteries** are manufd. by following steps; casting the active mass compns. on current collectors and then drying for forming **electrodes**; casting the matrix compns. and then drying for forming polymer electrolytes; heating the laminates at 60-150.degree.; pourring electrolyte solns. contg. **nonaq.** solvents and **Li** salts. The process does not need extn. of plasticizers and the **batteries** are obtained at low cost.

IT **144-55-8**, Sodium hydrogencarbonate, uses
(plasticizers; manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)

RN 144-55-8 HCA

CN Carbonic acid monosodium salt (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-02
ICS H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST carbonate plasticizer **electrode lithium** ion **battery** manuf; polymer electrolyte carbonate plasticizer **lithium battery** manuf
IT Fluoropolymers, uses
(**lithium** complexes, electrolytes; manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)
IT Secondary **batteries**
(**lithium**; manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)
IT **Battery anodes**
Battery cathodes
Battery electrodes
Battery electrolytes
Heating
Plasticizers
Polymer electrolytes
(manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)
IT Carbonates, uses
(plasticizers; manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)
IT 7782-42-5, Graphite, uses
(**anodes**; manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)
IT 12190-79-3, Cobalt **lithium** oxide (CoLiO2)
(**cathodes**; manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)
IT 7439-93-2D, **Lithium**, polymer complexes, uses

24937-79-9D, Polyvinylidene fluoride, **lithium** complexes, electrolytes
(manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)

IT **144-55-8**, Sodium hydrogencarbonate, uses 298-14-6 471-34-1, Calcium carbonate, uses 554-13-2, **Lithium** carbonate 1066-33-7, Ammonium hydrogencarbonate 5006-97-3, **Lithium** hydrogencarbonate
(plasticizers; manuf. of **lithium** ion polymer **batteries** with **electrodes** and electrolytes using thermally decompg. plasticizers)

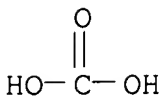
L145 ANSWER 4 OF 19 HCA COPYRIGHT 2005 ACS on STN Cathode $SrCO_3$.
132:196737 **Lithium** secondary **battery** with high safety property. Sunano, Taizo (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000077061 A2 20000314, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-245717 19980831.

AB This **Li** secondary **battery** comprises a **Li** +-intercalatable **anode**, a **non-aq.** electrolytic soln., and a **cathode** having a double layer structure comprising a 1st conductive layer contg. at least a conductive filler, a binder, and a substance decomposable at high potential in overcharging state and formed on an elec. collector and a 2nd layer contg. at least a **cathode** active mass, a conductive agent, and a binder and formed on the 1st layer. The substance decomposable at high temp. may be Li2CO3, ZnCO3. PbCO3, and **SrCO3**. Since the carbonates are easily decompd. at high voltage generated by overcharging, the inner resistance of the **battery** is surely increased due to elec. disconnection of the collector and the 2nd layer by the gas evolved by the carbonate decompn. to shut charging current without being accompanied with abrupt temp. increase.

IT **1633-05-2**, Strontium carbonate
(in **cathode**, gas evolution by overcharging; **non-aq. lithium** secondary **battery** comprising overcharging preventive **cathode** for safety property)

RN 1633-05-2 HCA

CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-02
ICS H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery cathode** layer structure overcharging safety; carbonate decompn overcharging prevention **battery cathode**
IT Carbonates, uses
(in **cathode**, gas evolution by overcharging; **non-aq. lithium** secondary **battery** comprising overcharging preventive **cathode** for safety property)
IT Secondary **batteries**
(**lithium**; **non-aq. lithium** secondary **battery** comprising overcharging preventive **cathode** for safety property)
IT **Battery cathodes**
(**non-aq. lithium** secondary **battery** comprising overcharging preventive **cathode** for safety property)
IT Safety
(of **battery** at the time of overcharging; **non-aq. lithium** secondary **battery** comprising overcharging preventive **cathode** for safety property)
IT 554-13-2, **Lithium** carbonate 598-63-0, Lead carbonate **1633-05-2**, Strontium carbonate 3486-35-9, Zinc carbonate
(in **cathode**, gas evolution by overcharging; **non-aq. lithium** secondary **battery** comprising overcharging preventive **cathode** for safety property)

$SrCO_3$ on separator.

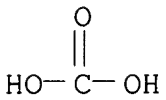
L145 ANSWER 5 OF 19 HCA COPYRIGHT 2005 ACS on STN
132:110650 Secondary **nonaqueous** electrolyte **batteries**. Kato, Kiyomi; Oura, Takafumi; Kitakawa, Masanori; Koshina, Shigeru (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000040499 A2 20000208, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-207430 19980723.
AB The **Li batteries** have a separator between a

cathode and an **anode**, where the separator is a porous polyolefin membrane, and has metal carbonate or metal oxide particles fixed on its surface facing the **cathode** and/or **anode**. The carbonate is CaCO3, MgCO3, BaCO3, or **SrCO3**; the oxide is CaO, MgO, Al2O3, or Co oxide; and the particles have diam. 2-30 .mu.m.

IT **1633-05-2**, Strontium carbonate
(porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)

RN 1633-05-2 HCA

CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M002-16
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium battery** porous polyolefin separator; carbonate particle polyolefin separator **lithium battery**; oxide particle polyolefin separator **lithium battery**

IT Secondary **battery** separators
(porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)

IT Polyolefins
(porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)

IT 9002-88-4, Polyethylene
(porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)

IT 471-34-1, Calcium carbonate, uses 513-77-9, Barium carbonate 546-93-0, Magnesium carbonate 1305-78-8, Calcium oxide, uses 1309-48-4, Magnesium oxide, uses 1344-28-1, Aluminum oxide, uses **1633-05-2**, Strontium carbonate 11104-61-3, Cobalt oxide
(porous polyolefin separators contg. metal carbonate or metal oxide particles on surface for secondary **lithium batteries**)

No

L145 ANSWER 6 OF 19 HCA COPYRIGHT 2005 ACS on STN
130:198814 **Electrode** active materials for **lithium** ion secondary **battery**. Miyasaka, Tsutomu (Fuji Photo Film Co., Ltd., Japan). U.S. US 5882821 A **19990316**, 13 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-805058 19970224. PRIORITY: JP 1996-62124 19960223; JP 1996-39564 19960227; JP 1996-335113 19961129.

AB In a **lithium** ion secondary **battery** having a **cathode**, an **anode**, a **nonaq.** electrolyte, and a container sealing the **electrodes** and electrolyte therein, the **cathode** is formed of a **cathode** active material which is produced by electrochem. intercalating a **lithium** ion into a **lithium** manganese-metal complex oxide in the container to give a **cathode** active material precursor comprising a **lithium** manganese-metal complex oxide of which **lithium** ion content is increased. The **anode** is formed of an **anode** active material which is produced by intercalating the released **lithium** ion into an **anode** active material precursor of a metal oxide in the container.

IT **12136-45-7P**, Potassium oxide, uses
(glass; **electrode** active materials for **lithium** ion secondary **battery**)

RN 12136-45-7 HCA

CN Potassium oxide (K2O) (8CI, 9CI) (CA INDEX NAME)

K—O—K

IC ICM H01M004-50

INCL 429224000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium** ion **battery anode** **cathode** prepn

IT Phosphate glasses
(borophosphate; **electrode** active materials for **lithium** ion secondary **battery**)

IT Intercalation
(electrochem.; **electrode** active materials for **lithium** ion secondary **battery**)

IT **Battery anodes**
Battery cathodes
(**electrode** active materials for **lithium** ion secondary **battery**)

IT Phosphate glasses
(**electrode** active materials for **lithium** ion secondary **battery**)

IT Secondary **batteries**
(**lithium**; **electrode** active materials for **lithium** ion secondary **battery**)
IT 195967-30-7P, **Lithium** manganese sodium oxide Li1.02Mn1.95Na0.05O4 220830-65-9P, Cobalt **lithium** manganese oxide (Co0.02Li1.02Mn1.95O4.2) 220830-68-2P, Iron **lithium** manganese oxide (Fe0.02Li1.02Mn1.95O4.2) 220830-71-7P, Chromium **lithium** manganese oxide (Cr0.02Li1.02Mn1.95O4.2) 220830-72-8P, Copper **lithium** manganese oxide (Cu0.02Li1.02Mn1.95O4.2) 220830-74-0P, Aluminum **lithium** manganese oxide (Al0.02Li1.02Mn1.95O4.2) 220830-75-1P, **Lithium** magnesium manganese oxide (Li1.02Mg0.03Mn1.95O4.1) 220830-77-3P, **Lithium** manganese sodium oxide (Li1.02Mn1.95Na0.02O4.1)
(**electrode** active materials for **lithium** ion secondary **battery**)
IT 1332-29-2P, Tin oxide **12136-45-7P**, Potassium oxide, uses
(glass; **electrode** active materials for **lithium** ion secondary **battery**)

L145 ANSWER 7 OF 19 HCA COPYRIGHT 2005 ACS on STN
130:156087 Secondary **nonaqueous** electrolyte **batteries**. Ozaki, Yoshiyuki; Muraoka, Norishige; Kobayashi, Shigeo (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11054154 A2 **19990226** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-205664 19970731.
AB The **batteries** have **Li** contg. transition metal oxide **cathodes**, **Li anodes**, **nonaq**. electrolytes, and a powd. or molded oxide, e.g., **SrO**, CaO, BaO, and/or MgO, not in direct contact with the **electrodes** or electrolyte for reacting with CO2 inside the **battery**. Preferably, the oxide is added at 0.04-0.2 mmol/g **cathode** active mass.
IT **1314-11-0**, Strontium oxide, uses
(**lithium batteries** contg. cobalt **lithium** nickel oxide **cathodes** and alk. earth oxide for absorbing carbon dioxide)
RN 1314-11-0 HCA
CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O=Sr

IC ICM H01M010-40
ICS H01M004-02; H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery** carbon dioxide absorbent; strontium oxide carbon dioxide absorbent **battery**; calcium

oxide carbon dioxide absorbent **battery**; barium oxide carbon dioxide absorbent **battery**; magnesium oxide carbon dioxide absorbent **battery**

IT Secondary **batteries**
(**lithium**; **lithium batteries** contg. cobalt **lithium** nickel oxide **cathodes** and alk. earth oxide for absorbing carbon dioxide)

IT 113066-89-0, Cobalt **lithium** nickel oxide (Co0.2LiNi0.8O2)
(**lithium batteries** contg. cobalt **lithium** nickel oxide **cathodes** and alk. earth oxide for absorbing carbon dioxide)

IT 1304-28-5, Barium oxide, uses 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses **1314-11-0**, Strontium oxide, uses
(**lithium batteries** contg. cobalt **lithium** nickel oxide **cathodes** and alk. earth oxide for absorbing carbon dioxide)

relevant print out.

L145 ANSWER 8 OF 19 HCA COPYRIGHT 2005 ACS on STN
130:40951 High-temperature stable secondary **nonaqueous** -electrolyte **battery** and its manufacture. Murata, Toshihide; Bito, Yasuhiko; Ito, Shuji; Toyoguchi, Yoshinori; Sato, Toshitada (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 883200 A2 **19981209**, 32 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1998-110363 19980605. PRIORITY: JP 1997-149121 19970606; JP 1997-289426 19971022.

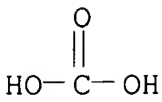
US 6150053

AB The **battery** includes a substance which produces either H2O or CO2 with an increase in temp., i.e., at 60-300 or 80-300.degree., resp. The substance is included in the **battery** **cathode** or **anode** at 0.5-20 wt. parts/100 wt. parts of the active material of the corresponding **electrode**. Examples of the substance which produces H2O include hydroxides and compds. having H2O of crystn. Examples of the substance which produces gaseous CO2 include carbonates and hydrogen carbonates.

IT **144-55-8**, Sodium bicarbonate, uses
(in high-temp. stable secondary **nonaq**.-electrolyte **batteries**)

RN 144-55-8 HCA

CN Carbonic acid monosodium salt (8CI, 9CI) (CA INDEX NAME)



● Na

IC ICM H01M004-62
ICS H01M010-40; H01M004-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery nonaq** electrolyte high temp stable;
water formation **nonaq** electrolyte **battery**;
carbon dioxide formation **nonaq** electrolyte **battery**
IT Secondary **batteries**
(**lithium**, **lithium**-ion; high-temp. stable
nonaq.-electrolyte)
IT 124-38-9P, Carbon dioxide, preparation 7732-18-5P, Water, preparation
(high-temp. stable secondary **nonaq**.-electrolyte
batteries contg. substance producing)
IT 139-12-8, Aluminum acetate **144-55-8**, Sodium bicarbonate, uses 298-14-6, Potassium bicarbonate 373-02-4, Nickel acetate 471-34-1, Calcium carbonate, uses 497-19-8, Carbonic acid disodium salt, uses 513-77-9 546-93-0, Magnesium carbonate 563-71-3, Iron carbonate (FeCO3) 584-08-7 584-09-8, Rubidium carbonate 814-87-9, Aluminum oxalate 917-69-1, Cobalt acetate 1305-62-0, Calcium hydroxide, uses 1308-04-9, Cobalt oxide (Co2O3) 1309-42-8, Magnesium hydroxide 1313-99-1, Nickel oxide (NiO), uses 1344-28-1, Alumina, uses 3333-67-3, Nickel carbonate (NiCO3) 3486-35-9, Zinc carbonate 7446-70-0, Aluminum chloride, uses 7542-09-8, Cobalt carbonate 7784-30-7, Aluminum phosphate 7786-81-4, Nickel sulfate 10043-01-3, Aluminum sulfate 10043-35-3, Boric acid, uses 10101-41-4, Calcium sulfate dihydrate 10294-50-5, Cobalt phosphate octahydrate 10381-36-9, Nickel phosphate 12026-04-9, Nickel hydroxide oxide (Ni(OH)O) 12026-24-3, Tin hydroxide (Sn(OH)2) 12054-48-7, Nickel hydroxide (Ni(OH)2) 12134-11-1, Chromium hydroxide (Cr(OH)2) 12233-29-3 12534-24-6 13138-45-9, Nickel nitrate 13455-31-7, Cobalt perchlorate 13455-36-2, Cobalt phosphate 13637-71-3, Nickel perchlorate 14475-63-9, Zirconium hydroxide 15519-28-5, Cesium bicarbonate 18933-05-6, Manganese hydroxide (Mn(OH)2) 19088-74-5, Rubidium bicarbonate 20338-08-3 20344-49-4, Iron hydroxide oxide (Fe(OH)O) 20427-58-1, Zinc hydroxide 21041-93-0, Cobalt hydroxide (Co(OH)2) 21041-95-2, Cadmium hydroxide 21645-51-2, Aluminum hydroxide, uses 34053-87-7, Barium nitrate

monohydrate 67092-84-6 134761-87-8, Cobalt oxalate
(in high-temp. stable secondary **nonaq**.-electrolyte **batteries**)

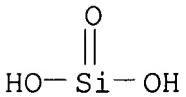
L145 ANSWER 9 OF 19 HCA COPYRIGHT 2005 ACS on STN
130:40925 Secondary **nonaqueous**-electrolyte **battery** and its **anode**. Sato, Toshitada; Bito, Yasuhiko; Murata, Toshihide; Ito, Shuji; Matsuda, Hiromu; Toyoguchi, Yoshinori (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 880187 A2 **19981125**, 37 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1998-109095 19980519. PRIORITY: JP 1997-132298 19970522.

AB An **anode** active material of a long-life title **battery** with high energy d. and showing excellent cycle life comprises LipZqXr, where Z represents .gtoreq.2 elements selected from the group of metals and semimetals .gtoreq.1 of which is selected from Na, K, Rb, Cs, Mg, Ca, Sr, Ba, Sc, Y, La, Ce, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W, Mn, Fe, Co, Ni, Cu, Ag, Zn, Cd and Pd; X is .gtoreq.1 element selected from O, S, Se and Te; 0 <(p + q + r) .ltoreq.25; p <10, 0 <q <10; and 0 <r .ltoreq.8.

IT **6834-92-0**, Sodium silicate (**Na2SiO3**)
(**anode** in high-performance **nonaq**.-electrolyte **batteries**)

RN 6834-92-0 HCA

CN Silicic acid (H2SiO3), disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M004-48
ICS H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery nonaq** electrolyte complex oxide **anode**; sulfide complex **nonaq** electrolyte **battery anode**; telluride complex **nonaq** electrolyte **battery anode**; selenide complex **nonaq** electrolyte **battery anode**

IT **Battery anodes**
(complex oxide and selenide and sulfide and telluride **nonaq**.-electrolyte)

IT 1302-42-7 **6834-92-0**, Sodium silicate (**Na2SiO3**)

10006-28-7, Potassium silicate (K2SiO3) 10101-39-0 11071-64-0 11073-75-9 11078-41-4, Aluminum strontium sulfide (Al2SrS4) 11078-42-5, Aluminum strontium selenide (Al2SrSe4) 11080-70-9, Gallium strontium selenide (Ga2SrSe4) 11094-01-2 12003-63-3 12004-04-5, Aluminum barium oxide (Al2BaO4) 12004-37-4, Aluminum strontium oxide (Al2SrO4) 12009-18-6, Barium tin oxide (BaSnO3) 12009-46-0, Barium germanium oxide (Ba2GeO4) 12013-41-1, Calcium indium oxide (CaIn2O4) 12013-46-6, Calcium tin oxide (CaSnO3) 12013-64-8, Calcium germanium oxide (Ca2GeO4) 12013-65-9 12014-04-9, Cadmium indium oxide (CdIn2O4) 12014-05-0, Cadmium indium selenide (CdIn2Se4) 12014-13-0, Cadmium tin oxide (CdSnO3) 12025-13-7, Germanium magnesium oxide (GeMg2O4) 12025-14-8 12025-20-6, Germanium sodium oxide (GeNa4O4) 12025-28-4, Germanium rubidium oxide (GeRb4O4) 12025-29-5, Germanium zinc oxide (GeZn2O4) 12030-23-8, Indium strontium oxide (In2SrO4) 12030-26-1, Indium zinc selenide (In2ZnSe4) 12030-28-3, Indium zinc telluride (In2ZnTe4) 12030-96-5 12032-29-0 12034-31-0 12042-68-1 12047-12-0, Barium gallium oxide (BaGa2O4) 12047-25-5 12056-00-7, Indium magnesium oxide (In2MgO4) 12056-03-0, Indium zinc oxide (In2ZnO4) 12056-05-2, Indium zinc sulfide (In2ZnS4) 12058-66-1 12058-76-3 12063-93-3 12064-13-0, Gallium magnesium oxide (Ga2MgO4) 12064-18-5, Gallium zinc oxide (Ga2ZnO4) 12064-22-1, Gallium zinc sulfide (Ga2ZnS4) 12065-00-8 12068-51-8, Aluminum magnesium oxide (Al2MgO4) 12068-53-0, Aluminum zinc oxide (Al2ZnO4) 12138-48-6 12139-12-7, Cadmium gallium oxide (CdGa2O4) 12139-26-3, Cadmium germanium oxide (Cd2GeO4) 12140-76-0, Germanium strontium oxide (GeSr2O4) 12140-79-3 12142-31-3 12142-33-5 12143-34-9, Strontium tin oxide (SrSnO3) 12180-94-8, Calcium gallium oxide (CaGa2O4) 12196-48-4 12196-51-9, Indium sodium sulfide (InNaS2) 12201-47-7 12202-06-1, Strontium zinc oxide (SrZnO2) 12208-83-2 12218-60-9, Germanium zinc sulfide (GeZn2S4) 12230-87-4, Barium zinc oxide (BaZnO2) 12231-00-4 12231-04-8 12231-35-5 12232-99-4, Bismuth sodium oxide (BiNaO3) 12252-16-3, Aluminum cadmium oxide (Al2CdO4) 12271-58-8, Aluminum zinc sulfide (Al2ZnS4) 12298-00-9, Gallium magnesium sulfide (Ga2MgS4) 12306-02-4 12315-16-1, Gallium strontium oxide (Ga2SrO4) 12359-71-6, Aluminum cadmium selenide (Al2CdSe4) 12359-83-0, Aluminum zinc selenide (Al2ZnSe4) 12370-60-4, Barium cadmium oxide (BaCdO2) 12370-89-7, Cadmium gallium selenide (CdGa2Se4) 12370-92-2 12382-62-6, Gallium zinc selenide (Ga2ZnSe4) 12396-71-3 12421-31-7, Aluminum cadmium telluride (Al2CdTe4) 12421-34-0, Aluminum zinc telluride (Al2ZnTe4) 12422-10-5, Cadmium gallium telluride (CdGa2Te4) 12422-92-3, Gallium zinc telluride (Ga2ZnTe4) 12432-08-5 12432-10-9 12437-38-6 12439-80-4 12439-82-6, Lead zinc oxide (PbZnO3) 12442-30-7, Cadmium zinc selenide (CdZnSe2) 12500-06-0 12534-19-9 12534-22-4 12589-46-7 12589-75-2 12590-00-0 12592-70-0, Gallium strontium sulfide (Ga2SrS4) 12775-70-1,

Cadmium lead oxide (CdPbO3) 13255-26-0, Barium silicate (BaSiO3) 13451-00-8 13477-19-5 13776-74-4 15123-62-3 17374-67-3 19299-00-4 39297-18-2 39297-20-6, Aluminum strontium telluride (Al2SrTe4) 39297-27-3 39297-28-4 39297-65-9, Gallium strontium telluride (Ga2SrTe4) 39297-73-9 39297-74-0 39297-75-1, Indium strontium telluride (In2SrTe4) 39466-56-3, Cadmium zinc sulfide (CdZnS2) 50864-25-0 51403-77-1 51403-85-1 51403-86-2 51403-87-3 51404-02-5 51404-22-9 51404-23-0 51680-91-2 51882-20-3 51913-20-3 56831-86-8, Aluminum magnesium telluride (Al2MgTe4) 56832-17-8 56832-18-9, Indium magnesium telluride (In2MgTe4) 58499-92-6 58500-08-6 58500-11-1 58500-59-7 59087-51-3, Cadmium zinc oxide (CdZnO2) 60874-08-0, Barium indium oxide (BaIn2O4) 60935-89-9 60968-55-0, Cadmium germanium selenide (Cd2GeSe4) 60969-07-5 61029-03-6, Germanium zinc selenide (GeZn2Se4) 61036-15-5, Aluminum magnesium selenide (Al2MgSe4) 61036-25-7 61216-36-2, Aluminum sodium selenide (AlNaSe2) 61216-37-3 61216-42-0 61216-43-1 61216-45-3 61216-53-3 61231-60-5 61497-89-0 63018-05-3, Rubidium zinc oxide (Rb2ZnO2) 67740-18-5 67847-61-4, Aluminum calcium selenide (Al2CaSe4) 75718-99-9, Barium cadmium germanium sulfide (BaCdGeS4) 79470-80-7, Aluminum barium selenide (Al2BaSe4) 86567-81-9, Aluminum calcium sulfide (Al2CaS4) 91698-66-7, Barium lead silicate (BaPb(SiO4)) 99807-78-0 100736-82-1 107385-82-0 111569-12-1, Cadmium zinc telluride (Cd0.5Zn0.5Te) 118391-36-9, Gallium magnesium selenide (Ga2MgSe4) 121458-95-5 124358-93-6, Strontium zinc sulfide (SrZnS2) 129292-43-9, Bismuth strontium oxide (Bi2SrO6) 133494-86-7, Cadmium calcium oxide (CdCaO2) 142747-83-9, Bismuth zinc oxide (Bi2ZnO6) 143310-91-2, Barium lead strontium oxide (Ba0.5PbSr0.5O3) 146290-10-0, Magnesium zinc telluride (Mg0.5Zn0.5Te) 151751-03-0, Potassium tin selenide (K2SnSe3) 155629-04-2, Magnesium zinc selenide (Mg0.5Zn0.5Se) 155629-05-3, Magnesium zinc sulfide (Mg0.5Zn0.5S) 159460-69-2, Cadmium magnesium telluride (Cd0.5Mg0.5Te) 164465-85-4, Strontium zinc selenide (Sr0.5Zn0.5Se) 171067-34-8, Aluminum potassium sulfide (AlKS2) 174818-45-2, Cadmium indium telluride (CdInTe4) 178426-93-2, Calcium zinc oxide (Ca0.5Zn0.5O) 193340-54-4, Bismuth magnesium oxide (Bi2MgO6) 203737-11-5, Bismuth rubidium oxide (BiRbO3) 215172-96-6, Magnesium zinc oxide (MgZnO2) 216597-81-8, Cadmium magnesium oxide (CdMgO2) 216597-84-1, Bismuth calcium oxide (Bi2CaO6) 216597-86-3, Cadmium strontium oxide (CdSrO2) 216597-92-1, Barium bismuth oxide (BaBi2O6) 216597-96-5, Barium strontium tin oxide (Ba0.5Sr0.5SnO3) 216597-97-6, Barium strontium tin oxide (Ba0.7Sr0.3SnO3) 216597-98-7, Barium strontium tin oxide (Ba0.9Sr0.1SnO3) 216597-99-8, Barium calcium tin oxide (Ba0.5Ca0.5SnO3) 216598-00-4, Barium magnesium tin oxide (Ba0.5Mg0.5SnO3) 216598-01-5, Indium rubidium oxide (InRbO2) 216598-03-7, Aluminum strontium tin oxide (Al2SrSnO5) 216598-04-8, Aluminum strontium oxide silicate (Al2SrO(SiO4)) 216598-05-9,

Aluminum lead strontium oxide (Al2PbSrO5) 216598-06-0, Aluminum cadmium strontium oxide (Al2CdSrO4) 216598-07-1, Aluminum bismuth strontium oxide (AlBiSrO4) 216598-08-2, Aluminum indium strontium oxide (AlInSrO3) 216598-09-3, Aluminum strontium zinc oxide (Al2SrZnO4) 216598-10-6, Aluminum gallium strontium oxide (AlGaSrO3) 216598-11-7, Aluminum germanium strontium oxide (Al2GeSrO4) 216598-12-8 216598-13-9, Lead strontium tin oxide (PbSrSnO4) 216598-14-0, Cadmium strontium tin oxide (CdSrSnO3) 216598-15-1, Bismuth strontium tin oxide (Bi2SrSnO7) 216598-16-2, Indium strontium tin oxide (In2SrSnO5) 216598-17-3, Strontium tin zinc oxide (SrSnZnO3) 216598-18-4, Gallium strontium tin oxide (Ga2SrSnO5) 216598-19-5, Germanium strontium tin oxide (GeSrSn2O4) 216598-20-8, Aluminum barium oxide silicate (Al2BaO(SiO4)) 216598-21-9 216598-23-1, Barium cadmium silicate (BaCd(SiO3)) 216598-24-2, Barium bismuth oxide silicate (BaBi2O3(SiO4)) 216598-25-3, Barium indium oxide silicate (BaIn2O(SiO4)) 216598-26-4, Barium zinc silicate (BaZn(SiO3)) 216598-27-5, Barium gallium oxide silicate (BaGa2O(SiO4)) 216598-28-6, Barium germanium oxide silicide (BaGeO4Si2) 216598-29-7, Aluminum barium lead oxide (Al2BaPbO5) 216598-30-0, Barium lead tin oxide (BaPbSnO4) 216598-31-1, Barium cadmium lead oxide (BaCdPbO3) 216598-32-2, Barium bismuth lead oxide (BaBi2PbO7) 216598-33-3, Barium indium lead oxide (BaIn2PbO5) 216598-34-4, Barium lead zinc oxide (BaPbZnO3) 216598-35-5, Barium gallium lead oxide (BaGa2PbO5) 216598-36-6, Barium germanium lead oxide (BaGePb2O4) 216598-37-7, Bismuth cadmium oxide (BiCdO4) 216598-38-8, Aluminum barium bismuth oxide (AlBaBiO4) 216598-39-9, Barium bismuth tin oxide (BaBi2SnO7) 216598-40-2, Barium bismuth cadmium oxide (BaBi2CdO6) 216598-41-3, Barium bismuth indium oxide (BaBiInO4) 216598-42-4, Barium bismuth zinc oxide (BaBi2ZnO6) 216598-43-5, Barium bismuth gallium oxide (BaBiGaO4) 216598-44-6, Barium bismuth germanium oxide (BaBi2GeO4) 216598-45-7, Indium strontium oxide silicate (In2SrO(SiO4)) 216598-46-8, Indium lead strontium oxide (In2PbSrO5) 216598-47-9, Cadmium indium strontium oxide (CdIn2SrO4) 216598-48-0, Bismuth indium strontium oxide (BiInSrO4) 216598-49-1, Indium strontium zinc oxide (In2SrZnO4) 216598-50-4, Gallium indium strontium oxide (GaInSrO3) 216598-51-5, Germanium indium strontium oxide (GeIn2SrO4) 216598-52-6, Tin zinc oxide (SnZnO4) 216598-53-7, Aluminum gallium magnesium oxide (AlGaMgO3) 216598-54-8, Gallium magnesium tin oxide (Ga2MgSnO5) 216598-55-9, Gallium magnesium oxide silicate (Ga2MgO3(SiO4))
(**anode** in high-performance **nonaq**.-electrolyte **batteries**)

IT 216598-56-0, Gallium lead magnesium oxide (Ga2PbMgO5) 216598-57-1, Cadmium gallium magnesium oxide (CdGa2MgO4) 216598-58-2, Bismuth gallium magnesium oxide (BiGaMgO4) 216598-59-3, Gallium indium magnesium oxide (GaInMgO3) 216598-60-6, Gallium magnesium zinc oxide (Ga2MgZnO4) 216598-61-7, Gallium germanium magnesium oxide

(Ga2GeMgO4) 216598-62-8, Aluminum germanium magnesium oxide (Al2GeMgO5) 216598-63-9, Germanium magnesium tin oxide (GeMgSnO4) 216598-64-0 216598-65-1, Germanium lead magnesium oxide (GePbMgO4) 216598-66-2, Cadmium germanium magnesium oxide (CdGeMgO3) 216598-67-3, Bismuth germanium magnesium oxide (Bi2GeMgO7) 216598-68-4, Germanium indium magnesium oxide (GeIn2MgO5) 216598-69-5, Germanium magnesium zinc oxide (GeMgZnO3) 216598-70-8, Gallium germanium magnesium oxide (Ga2GeMgO5) 216598-71-9, Lead magnesium sulfide (PbMgS3) 216598-72-0, Cadmium magnesium sulfide (CdMgS2) 216598-73-1, Bismuth magnesium sulfide (Bi2MgS6) 216598-74-2, Calcium lead sulfide (CaPbS3) 216598-75-3, Cadmium calcium sulfide (CdCaS2) 216598-76-4, Bismuth calcium sulfide (Bi2CaS6) 216598-77-5 216598-78-6, Lead strontium sulfide (PbSrS3) 216598-79-7, Cadmium strontium sulfide (CdSrS2) 216598-80-0, Bismuth strontium sulfide (Bi2SrS6) 216598-81-1 216598-82-2, Barium lead sulfide (BaPbS3) 216598-83-3, Barium bismuth sulfide (BaBi2S6) 216598-84-4, Barium strontium tin sulfide (Ba0.5Sr0.5SnS3) 216598-85-5, Barium strontium tin sulfide (Ba0.7Sr0.3SnS3) 216598-86-6, Barium strontium tin sulfide (Ba0.9Sr0.1SnS3) 216598-87-7, Barium calcium tin sulfide (Ba0.5Ca0.5SnS3) 216598-88-8, Barium magnesium tin sulfide (Ba0.5Mg0.5SnS3) 216598-89-9 216598-90-2, Barium lead strontium sulfide (Ba0.5PbSr0.5S3) 216598-91-3, Aluminum sodium sulfide (AlNaS2) 216598-92-4, Lead sodium sulfide (PbNa2S3) 216598-93-5, Bismuth sodium sulfide (BiNaS3) 216598-94-6 216598-95-7, Lead potassium sulfide (PbK2S3) 216598-96-8, Cadmium potassium sulfide (CdK2S2) 216598-97-9, Bismuth potassium sulfide (BiKS3) 216598-98-0, Potassium zinc sulfide (K2ZnS2) 216598-99-1, Gallium potassium sulfide (GaKS2) 216599-00-7, Germanium potassium sulfide (GeK4S4) 216599-01-8, Aluminum sodium tin sulfide (Al2Na2SnS5) 216599-02-9, Aluminum sodium sulfide thiosilicate (Al2Na2S(SiS4)) 216599-03-0, Aluminum lead sodium sulfide (Al2PbNa2S5) 216599-04-1, Aluminum cadmium sodium sulfide (Al2CdNa2S4) 216599-05-2, Aluminum bismuth sodium sulfide (AlBiNa2S4) 216599-06-3, Aluminum indium sodium sulfide (AlInNa2S3) 216599-07-4, Aluminum sodium zinc sulfide (Al2Na2ZnS4) 216599-08-5, Aluminum gallium sodium sulfide (AlGaNa2S3) 216599-09-6, Aluminum germanium sodium sulfide (Al2GeNa2S4) 216599-10-9, Aluminum strontium tin sulfide (Al3SrSnS5) 216599-11-0 216599-12-1, Lead strontium tin sulfide (PbSrSnS4) 216599-13-2, Cadmium strontium tin sulfide (CdSrSnS3) 216599-14-3, Bismuth strontium tin sulfide (Bi2SrSnS7) 216599-15-4, Indium strontium tin sulfide (In2SrSnS5) 216599-16-5, Strontium tin zinc sulfide (SrSnZnS3) 216599-17-6, Gallium strontium tin sulfide (Ga2SrSnS5) 216599-18-7, Germanium strontium tin sulfide (GeSrSn2S4) 216599-19-8, Aluminum barium sulfide thiosilicate (Al2BaS(SiS4)) 216599-20-1 216599-21-2 216599-22-3, Barium cadmium silicide sulfide (BaCdSiS3) 216599-23-4, Barium bismuth

sulfide thiosilicate (BaBi2S3(SiS4)) 216599-24-5, Barium indium sulfide thiosilicate (BaIn2S(SiS4)) 216599-25-6, Barium zinc silicide sulfide (BaZnSiS3) 216599-26-7, Barium gallium sulfide thiosilicate (BaGa2S(SiS4)) 216599-27-8, Barium germanium silicide sulfide (BaGeSi2S4) 216599-28-9, Aluminum calcium lead sulfide (Al2CaPbS5) 216599-29-0, Calcium lead tin sulfide (CaPbSnS4) 216599-30-3 216599-31-4, Cadmium calcium lead sulfide (CdCaPbS3) 216599-32-5, Bismuth calcium lead sulfide (Bi2CaPbS7) 216599-33-6, Calcium indium lead sulfide (CaIn2PbS5) 216599-34-7, Calcium lead zinc sulfide (CaPbZnS3) 216599-35-8, Calcium gallium lead sulfide (CaGa2PbS5) 216599-36-9, Calcium germanium lead sulfide (CaGePb2S4) 216599-37-0, Aluminum cadmium calcium sulfide (Al2CdCaS4) 216599-38-1, Cadmium calcium tin sulfide (CdCaSnS3) 216599-39-2, Cadmium calcium silicide sulfide (CdCaSiS3) 216599-40-5, Bismuth cadmium calcium sulfide (BiCdCaS4) 216599-41-6, Cadmium calcium indium sulfide (CdCaIn2S4) 216599-42-7, Cadmium calcium zinc sulfide (CdCaZnS2) 216599-43-8, Cadmium calcium gallium sulfide (CdCaGa2S5) 216599-44-9, Cadmium calcium germanium sulfide (Cd2CaGeS5) 216599-45-0, Aluminum bismuth magnesium sulfide (AlBiMgS5) 216599-46-1, Bismuth magnesium tin sulfide (Bi2MgSnS8) 216599-47-2, Bismuth magnesium sulfide thiosilicate (Bi2MgS4(SiS4)) 216599-48-3, Bismuth lead magnesium sulfide (Bi2PbMgS8) 216599-49-4, Bismuth cadmium magnesium sulfide (Bi2CdMgS7) 216599-50-7, Bismuth indium magnesium sulfide (BiInMgS5) 216599-51-8, Bismuth magnesium zinc sulfide (Bi2MgZnS7) 216599-52-9, Bismuth gallium magnesium sulfide (BiGaMgS5) 216599-53-0, Bismuth germanium magnesium sulfide (Bi2GeMgS5) 216599-54-1, Aluminum indium potassium sulfide (AlInK2S4) 216599-55-2, Indium potassium tin sulfide (In2K2SnS6) 216599-56-3, Indium potassium sulfide thiosilicate (In2K2S2(SiS4)) 216599-57-4, Indium lead potassium sulfide (In2PbK2S6) 216599-58-5, Cadmium indium potassium sulfide (CdIn2K2S5) 216599-59-6, Bismuth indium potassium sulfide (BiInK2S5) 216599-60-9, Indium potassium zinc sulfide (In2K2ZnS5) 216599-61-0, Gallium indium potassium sulfide (GaInK2S4) 216599-62-1, Germanium indium potassium sulfide (GeIn2K2S5) 216599-63-2, Tin zinc sulfide (SnZnS4) 216599-64-3 216599-65-4, Lead zinc sulfide (PbZnS3) 216599-66-5, Bismuth zinc sulfide (Bi2ZnS6) 216599-67-6, Aluminum gallium strontium sulfide (AlGaSrS4) 216599-68-7, Gallium strontium tin sulfide (Ga2SrSnS6) 216599-69-8, Gallium strontium sulfide thiosilicate (Ga2SrS4(SiS4)) 216599-70-1, Gallium lead strontium sulfide (Ga2PbSrS6) 216599-71-2, Cadmium gallium strontium sulfide (CdGa2SrS5) 216599-72-3, Bismuth gallium strontium sulfide (BiGaSrS5) 216599-73-4, Gallium indium strontium sulfide (GaInSrS4) 216599-74-5, Gallium strontium zinc sulfide (Ga2SrZnS5) 216599-75-6, Gallium germanium strontium sulfide (Ga2GeSrS5) 216599-76-7, Aluminum barium germanium sulfide (Al2BaGeS6)

216599-77-8, Barium germanium tin sulfide (BaGeSnS5) 216599-78-9, Barium germanium sulfide thiosilicate (BaGeS(SiS4)) 216599-79-0, Barium germanium lead sulfide (BaGePbS5) 216599-80-3, Barium bismuth germanium sulfide (BaBi2GeS8) 216599-81-4, Barium germanium indium sulfide (BaGeIn2S6) 216599-82-5, Barium germanium zinc sulfide (BaGeZnS4) 216599-83-6, Barium gallium germanium sulfide (BaGa2GeS6) 216599-84-7, Magnesium tin selenide (MgSnSe3) 216599-85-8 216599-86-9, Lead magnesium selenide (PbMgSe3) 216599-87-0, Cadmium magnesium selenide (CdMgSe2) 216599-88-1, Bismuth magnesium selenide (Bi2MgSe6) 216599-89-2, Germanium magnesium selenide (GeMg2Se4) 216599-90-5, Calcium tin selenide (CaSnSe3) 216599-91-6 216599-92-7, Calcium lead selenide (CaPbSe3) 216599-93-8, Cadmium calcium selenide (CdCaSe2) 216599-94-9, Bismuth calcium selenide (Bi2CaSe6) 216599-95-0, Calcium indium selenide (CaIn2Se4) 216599-96-1, Calcium zinc selenide (CaZnSe2) 216599-97-2, Calcium germanium selenide (Ca2GeSe4) 216599-99-4, Strontium tin selenide (SrSnSe3) 216600-00-9 216600-01-0, Lead strontium selenide (PbSrSe3) 216600-02-1, Cadmium strontium selenide (CdSrSe2) 216600-03-2, Bismuth strontium selenide (Bi2SrSe6) 216600-04-3, Germanium strontium selenide (GeSr2Se4) 216600-05-4 216600-06-5, Barium lead selenide (BaPbSe3) 216600-07-6, Barium cadmium selenide (BaCdSe2) 216600-08-7, Barium bismuth selenide (BaBi2Se6) 216600-09-8, Barium zinc selenide (BaZnSe2) 216600-10-1, Barium germanium selenide (Ba2GeSe4) 216600-11-2, Barium strontium tin selenide (Ba0.5Sr0.5SnSe3) 216600-12-3, Barium strontium tin selenide (Ba0.9Sr0.1SnSe3) 216600-13-4, Barium calcium tin selenide (Ba0.5Ca0.5SnSe3) 216600-14-5, Barium magnesium tin selenide (Ba0.5Mg0.5SnSe3) 216600-15-6 216600-16-7, Barium lead strontium selenide (Ba0.5PbSr0.5Se3) 216600-17-8 216600-18-9, Lead sodium selenide (PbNa2Se3) 216600-19-0, Cadmium sodium selenide (CdNa2Se2) 216600-20-3, Bismuth sodium selenide (BiNaSe3) 216600-21-4, Sodium zinc selenide (Na2ZnSe2) 216600-22-5, Gallium sodium selenide (GaNaSe2) 216600-23-6 216600-24-7, Lead potassium selenide (PbK2Se3) 216600-25-8, Cadmium potassium selenide (CdK2Se2) 216600-26-9, Bismuth potassium selenide (BiKSe3) 216600-27-0, Potassium zinc selenide (K2ZnSe2) 216600-28-1, Germanium potassium selenide (GeK4Se4) 216600-29-2 216600-30-5, Aluminum cadmium strontium selenide (Al2CdSrSe5) 216600-31-6, Aluminum bismuth strontium selenide (AlBiSrSe5) 216600-32-7, Aluminum indium strontium selenide (AlInSrSe4) 216600-33-8, Aluminum strontium zinc selenide (Al2SrZnSe5) 216600-34-9, Aluminum gallium strontium selenide (AlGaSrSe4) 216600-35-0, Aluminum germanium strontium selenide (Al2GeSrSe5) 216600-36-1, Aluminum barium tin selenide (Al2BaSnSe6) 216600-37-2, Aluminum lead strontium selenide (Al2PbSrSe6) 216600-38-3, Barium tin selenide selenosilicate (BaSnSe(SiSe4)) 216600-39-4, Barium lead tin selenide (BaPbSnSe5) 216600-40-7,

Barium cadmium tin selenide (BaCdSnSe4) 216600-41-8, Barium bismuth tin selenide (BaBi2SnSe8) 216600-42-9, Barium indium tin selenide (BaIn2SnSe6) 216600-43-0, Barium gallium tin selenide (BaGa2SnSe6) 216600-44-1, Barium germanium tin selenide (BaGeSn2Se5) 216600-45-2 216600-46-3, Potassium tin selenide selenosilicate (K2SnSe(SiSe4)) 216600-47-4, Lead potassium selenide selenosilicate (PbK2Se(SiSe4)) 216600-48-5, Barium tin zinc selenide (BaSnZnSe4) 216600-49-6 216600-50-9 216600-51-0, Indium potassium selenide selenosilicate (In2K2Se2(SiSe4)) 216600-52-1 216600-53-2 216600-54-3, Germanium potassium selenide silicide (GeK2Se5Si2) 216600-55-4, Aluminum lead magnesium selenide (Al2PbMgSe6) 216600-56-5, Lead magnesium tin selenide (PbMgSnSe5) 216600-57-6, Lead magnesium selenide selenosilicate (PbMgSe(SiSe4)) 216600-58-7, Cadmium lead magnesium selenide (CdPbMgSe4) 216600-59-8, Bismuth lead magnesium selenide (Bi2PbMgSe8) 216600-60-1, Indium lead magnesium selenide (In2PbMgSe6) 216600-61-2, Lead magnesium zinc selenide (PbMgZnSe4) 216600-62-3, Gallium lead magnesium selenide (Ga2PbMgSe6) 216600-63-4, Germanium lead magnesium selenide (GePb2MgSe5) 216600-64-5, Cadmium tin selenide (CdSnSe3) 216600-65-6 216600-66-7, Cadmium lead selenide (CdPbSe3) 216600-67-8, Bismuth cadmium selenide (BiCdSe4) 216600-68-9, Aluminum bismuth calcium selenide (AlBiCaSe5) 216600-69-0, Bismuth calcium tin selenide (Bi2CaSnSe8) 216600-70-3, Bismuth calcium selenide selenosilicate (Bi2CaSe4(SiSe4)) 216600-71-4, Bismuth calcium lead selenide (Bi2CaPbSe8) 216600-72-5, Bismuth cadmium calcium selenide (Bi2CdCaSe7) 216600-73-6, Bismuth calcium indium selenide (BiCaInSe5) 216600-74-7, Bismuth calcium zinc selenide (Bi2CaZnSe7) 216600-75-8, Bismuth calcium gallium selenide (BiCaGaSe5) 216600-76-9, Bismuth calcium germanium selenide (Bi2CaGeSe5) 216600-77-0, Indium strontium tin selenide (In2SrSnSe6) 216600-78-1, Indium lead strontium selenide (In2PbSrSe6) 216600-79-2, Cadmium indium strontium selenide (CdIn2SrSe5) 216600-80-5, Bismuth indium strontium selenide (BiInSrSe5) 216600-81-6, Indium strontium zinc selenide (In2SrZnSe5) 216600-82-7, Gallium indium strontium selenide (GaInSrSe4) 216600-83-8, Germanium indium strontium selenide (GeIn2SrSe5) 216600-84-9, Tin zinc selenide (SnZnSe4) 216600-85-0 216600-86-1, Lead zinc selenide (PbZnSe3) 216600-87-2, Bismuth zinc selenide (Bi2ZnSe6) 216600-88-3, Aluminum gallium magnesium selenide (AlGaMgSe4) 216600-89-4, Gallium magnesium tin selenide (Ga2MgSnSe6) 216600-90-7 216600-91-8, Cadmium gallium magnesium selenide (CdGa2MgSe5) 216600-92-9, Bismuth gallium magnesium selenide (BiGaMgSe5) 216600-93-0, Gallium indium magnesium selenide (GaInMgSe4) 216600-94-1, Gallium magnesium zinc selenide (Ga2MgZnSe5) 216600-95-2, Gallium germanium magnesium selenide (Ga2GeMgSe5) 216600-96-3, Aluminum germanium strontium selenide (Al2GeSrSe6)

(**anode** in high-performance **nonaq**.-electrolyte **batteries**)

IT 216600-97-4, Germanium strontium tin selenide (GeSrSnSe5) 216600-98-5 216600-99-6, Germanium lead strontium selenide (GePbSrSe5) 216601-00-2, Cadmium germanium strontium selenide (CdGeSrSe4) 216601-01-3, Bismuth germanium strontium selenide (Bi2GeSrSe8) 216601-02-4, Germanium indium strontium selenide (GeIn2SrSe6) 216601-03-5, Germanium strontium zinc selenide (GeSrZnSe4) 216601-04-6, Gallium germanium strontium selenide (Ga2GeSrSe6) 216601-05-7, Magnesium tin telluride (MgSnTe3) 216601-06-8, Lead magnesium telluride (PbMgTe3) 216601-07-9, Bismuth magnesium telluride (Bi2MgTe6) 216601-09-1, Germanium magnesium telluride (GeMg2Te4) 216601-10-4, Aluminum calcium telluride (Al2CaTe4) 216601-11-5, Calcium tin telluride (CaSnTe3) 216601-12-6 216601-13-7, Calcium lead telluride (CaPbTe3) 216601-14-8, Cadmium calcium telluride (CdCaTe2) 216601-15-9, Bismuth calcium telluride (Bi2CaTe6) 216601-16-0, Calcium indium telluride (CaIn2Te4) 216601-17-1, Calcium zinc telluride (CaZnTe2) 216601-18-2, Calcium gallium telluride (CaGa2Te4) 216601-19-3, Calcium germanium telluride (Ca2GeTe4) 216601-21-7, Strontium tin telluride (SrSnTe3) 216601-22-8 216601-23-9, Lead strontium telluride (PbSrTe3) 216601-24-0, Cadmium strontium telluride (CdSrTe2) 216601-25-1, Bismuth strontium telluride (Bi2SrTe6) 216601-27-3, Strontium zinc telluride (SrZnTe2) 216601-29-5, Germanium strontium telluride (GeSr2Te4) 216601-30-8, Barium tin telluride (BaSnTe3) 216601-31-9 216601-32-0, Barium lead telluride (BaPbTe3) 216601-33-1, Barium cadmium telluride (BaCdTe2) 216601-34-2, Barium bismuth telluride (BaBi2Te6) 216601-35-3, Barium zinc telluride (BaZnTe2) 216601-36-4, Barium germanium telluride (Ba2GeTe4) 216601-37-5, Barium strontium tin telluride (Ba0.5Sr0.5SnTe3) 216601-38-6, Barium strontium tin telluride (Ba0.7Sr0.3SnTe3) 216601-39-7, Barium strontium tin telluride (Ba0.9Sr0.1SnTe3) 216601-40-0, Barium magnesium tin telluride (Ba0.5Mg0.5SnTe3) 216601-41-1 216601-42-2, Barium lead strontium telluride (Ba0.5PbSr0.5Te3) 216601-43-3, Sodium tin telluride (Na2SnTe3) 216601-44-4 216601-45-5, Lead sodium telluride (PbNa2Te3) 216601-46-6, Cadmium sodium telluride (CdNa2Te2) 216601-47-7, Bismuth sodium telluride (BiNaTe3) 216601-48-8, Sodium zinc telluride (Na2ZnTe2) 216601-49-9, Germanium sodium telluride (GeNa4Te4) 216601-50-2, Potassium tin telluride (K2SnTe3) 216601-51-3, Lead potassium telluride (PbK2Te3) 216601-52-4, Cadmium potassium telluride (CdK2Te2) 216601-53-5, Bismuth potassium telluride (BiKTe3) 216601-54-6, Potassium zinc telluride (K2ZnTe2) 216601-55-7, Aluminum strontium tin telluride (Al2SrSnTe6) 216601-56-8 216601-57-9, Aluminum lead strontium telluride (Al2PbSrTe6) 216601-58-0, Aluminum cadmium strontium telluride (Al2CdSrTe5) 216601-59-1, Aluminum bismuth strontium telluride (AlBiSrTe5) 216601-60-4, Aluminum

indium strontium telluride (AlInSrTe4) 216601-61-5, Aluminum strontium zinc telluride (Al2SrZnTe5) 216601-62-6, Aluminum gallium strontium telluride (AlGaSrTe4) 216601-63-7, Aluminum germanium strontium telluride (Al2GeSrTe5) 216601-64-8, Aluminum barium tin telluride (Al2BaSnTe6) 216601-65-9, Barium tin telluride tellurosilicate (BaSnTe(SiTe4)) 216601-66-0, Barium lead tin telluride (BaPbSnTe5) 216601-67-1, Barium cadmium tin telluride (BaCdSnTe4) 216601-68-2, Barium bismuth tin telluride (BaBi2SnTe8) 216601-69-3, Barium indium tin telluride (BaIn2SnTe5) 216601-70-6, Barium tin zinc telluride (BaSnZnTe4) 216601-71-7, Barium gallium tin telluride (BaGa2SnTe6) 216601-72-8, Barium germanium tin telluride (BaGeSn2Te5) 216601-73-9 216601-74-0, Potassium tin telluride tellurosilicate (K2SnTe(SiTe4)) 216601-75-1, Lead potassium telluride tellurosilicate (PbK2Te(SiTe4)) 216601-76-2 216601-77-3 216601-78-4 216601-79-5 216601-80-8 216601-81-9, Germanium potassium silicide telluride (GeK2Si2Te5) 216601-82-0, Aluminum lead magnesium telluride (Al2PbMgTe6) 216601-83-1, Lead magnesium tin telluride (PbMgSnTe5) 216601-84-2, Lead magnesium telluride tellurosilicate (PbMgTe(SiTe4)) 216601-85-3, Cadmium lead magnesium telluride (CdPbMgTe4) 216601-86-4, Bismuth lead magnesium telluride (Bi2PbMgTe8) 216601-87-5, Indium lead magnesium telluride (In2PbMgTe6) 216601-88-6, Lead magnesium zinc telluride (PbMgZnTe4) 216601-89-7, Gallium lead magnesium telluride (Ga2PbMgTe6) 216601-90-0, Germanium lead magnesium telluride (GePb2MgTe5) 216601-91-1, Cadmium tin telluride (CdSnTe3) 216601-92-2 216601-93-3, Cadmium lead telluride (CdPbTe3) 216601-94-4, Bismuth cadmium telluride (BiCdTe4) 216601-95-5, Cadmium germanium telluride (Cd2GeTe4) 216601-96-6, Bismuth strontium tin telluride (Bi2SrSnTe8) 216601-97-7 216601-98-8, Bismuth lead strontium telluride (Bi2PbSrTe8) 216601-99-9, Bismuth cadmium strontium telluride (Bi2CdSrTe7) 216602-00-5, Bismuth indium strontium telluride (BiInSrTe5) 216602-01-6, Bismuth strontium zinc telluride (Bi2SrZnTe7) 216602-02-7, Bismuth gallium strontium telluride (BiGaSrTe5) 216602-03-8, Aluminum barium indium telluride (AlBaInTe4) 216602-04-9, Barium indium tin telluride (BaIn2SnTe6) 216602-05-0, Barium indium telluride tellurosilicate (BaIn2Te2(SiTe4)) 216602-06-1, Barium indium lead telluride (BaIn2PbTe6) 216602-07-2, Barium cadmium indium telluride (BaCdIn2Te5) 216602-08-3, Barium bismuth indium telluride (BaBiInTe5) 216602-09-4, Barium indium zinc telluride (BaIn2ZnTe5) 216602-10-7, Barium gallium indium telluride (BaGaInTe4) 216602-11-8, Barium germanium indium telluride (BaGeIn2Te5) 216602-12-9, Tin zinc telluride (SnZnTe4) 216602-13-0 216602-14-1, Lead zinc telluride (PbZnTe3) 216602-15-2, Bismuth zinc telluride (Bi2ZnTe6) 216602-16-3, Germanium zinc telluride (GeZn2Te4) 216602-17-4, Aluminum gallium magnesium telluride

(AlGaMgTe4) 216602-18-5, Gallium magnesium tin telluride (Ga2MgSnTe6) 216602-19-6 216602-20-9, Cadmium gallium magnesium telluride (CdGa2MgTe5) 216602-21-0, Bismuth gallium magnesium telluride (BiGaMgTe5) 216602-22-1, Gallium indium magnesium telluride (GaInMgTe4) 216602-23-2, Gallium magnesium zinc telluride (Ga2MgZnTe5) 216602-24-3, Gallium germanium magnesium telluride (Ga2GeMgTe5) 216602-25-4, Aluminum calcium germanium telluride (Al2CaGeTe6) 216602-26-5, Calcium germanium tin telluride (CaGeSnTe5) 216602-27-6 216602-28-7, Calcium germanium lead telluride (CaGePbTe5) 216602-29-8, Cadmium calcium germanium telluride (CdCaGeTe4) 216602-30-1, Bismuth calcium germanium telluride (Bi2CaGeTe8) 216602-31-2, Calcium germanium indium telluride (CaGeIn2Te6) 216602-32-3, Calcium germanium zinc telluride (CaGeZnTe4) 216602-33-4, Calcium gallium germanium telluride (CaGa2GeTe6) 216602-34-5, **Lithium** magnesium tin oxide (Li0.1MgSnO3) 216602-35-6, **Lithium** magnesium tin oxide (Li0.5MgSnO3) 216602-36-7, **Lithium** magnesium tin oxide (LiMgSnO3) 216602-37-8, **Lithium** magnesium tin oxide (Li2MgSnO3) 216602-38-9, **Lithium** magnesium tin oxide (Li3MgSnO3) 216602-39-0, **Lithium** magnesium tin oxide (Li4MgSnO3) 216602-40-3, **Lithium** magnesium tin oxide (Li5MgSnO3) 216602-41-4, **Lithium** magnesium tin oxide (Li6MgSnO3) 216602-42-5, **Lithium** magnesium tin oxide (Li7MgSnO3) 216602-43-6, **Lithium** magnesium tin oxide (Li8MgSnO3) 216602-44-7, **Lithium** magnesium tin oxide (Li9MgSnO3) 216602-45-8, **Lithium** magnesium tin oxide (Li10MgSnO3) 216602-46-9, **Lithium** magnesium tin oxide (Li11MgSnO3) 216602-47-0, **Lithium** magnesium tin oxide (Li12MgSnO3) 216602-48-1, Antimony **lithium** tin oxide (SbLi0.1SnO3) 216602-49-2, Antimony **lithium** tin oxide (SbLi0.5SnO3) 216602-50-5, Barium **lithium** strontium tin oxide (BaLiSrSnO3) 216602-51-6, Barium **lithium** strontium tin oxide (BaLi2SrSnO3) 216602-52-7, Barium **lithium** strontium tin oxide (BaLi3SrSnO3) 216602-53-8, Barium **lithium** strontium tin oxide (BaLi4SrSnO3) 216602-54-9, Barium **lithium** strontium tin oxide (BaLi5SrSnO3) 216602-55-0, Barium **lithium** strontium tin oxide (BaLi6SrSnO3) 216602-56-1, Barium **lithium** strontium tin oxide (BaLi7SrSnO3) 216602-57-2, Barium **lithium** strontium tin oxide (BaLi8SrSnO3) 216602-58-3, Barium **lithium** strontium tin oxide (BaLi9SrSnO3) 216602-59-4, Barium **lithium** strontium tin oxide (BaLi10SrSnO3) 216602-60-7, Barium **lithium** strontium tin oxide (BaLi11SrSnO3) 216602-61-8, Barium **lithium** strontium tin oxide (BaLi12SrSnO3) 216602-62-9, Calcium **lithium** tin sulfide (CaLi0.1SnS3) 216602-63-0, Calcium **lithium** tin sulfide (CaLi0.5SnS3) 216602-64-1, Calcium **lithium** tin sulfide (CaLiSnS3) 216602-65-2,

Calcium **lithium** tin sulfide (CaLi2SnS3) 216602-66-3,
Calcium **lithium** tin sulfide (CaLi3SnS3) 216602-67-4,
Calcium **lithium** tin sulfide (CaLi4SnS3) 216602-68-5,
Calcium **lithium** tin sulfide (CaLi5SnS3) 216602-69-6,
Calcium **lithium** tin sulfide (CaLi6SnS3) 216602-70-9,
Calcium **lithium** tin sulfide (CaLi7SnS3) 216602-71-0,
Calcium **lithium** tin sulfide (CaLi8SnS3) 216602-72-1,
Calcium **lithium** tin sulfide (CaLi9SnS3) 216602-73-2,
Calcium **lithium** tin sulfide (CaLi10SnS3) 216602-74-3,
Calcium **lithium** tin sulfide (CaLi11SnS3) 216602-75-4,
Calcium **lithium** tin sulfide (CaLi12SnS3) 216602-76-5,
Lithium strontium tin selenide (Li0.1SrSnSe3) 216602-77-6,
Lithium strontium tin selenide (Li0.5SrSnSe3) 216602-78-7,
Lithium strontium tin selenide (LiSrSnSe3) 216602-79-8,
Calcium **lithium** tin selenide (CaLi2SnSe3) 216602-80-1,
Calcium **lithium** tin selenide (CaLi3SnSe3) 216602-81-2,
Calcium **lithium** tin selenide (CaLi4SnSe3) 216602-82-3,
Calcium **lithium** tin selenide (CaLi5SnSe3) 216602-83-4,
Calcium **lithium** tin selenide (CaLi6SnSe3) 216602-84-5,
Calcium **lithium** tin selenide (CaLi7SnSe3) 216602-85-6,
Calcium **lithium** tin selenide (CaLi8SnSe3) 216602-86-7,
Calcium **lithium** tin selenide (CaLi9SnSe3) 216602-87-8,
Calcium **lithium** tin selenide (CaLi10SnSe3) 216602-88-9,
Calcium **lithium** tin selenide (CaLi11SnSe3) 216602-89-0,
Calcium **lithium** tin selenide (CaLi12SnSe3) 216602-90-3,
Barium **lithium** tin telluride (BaLi0.1SnTe3) 216602-91-4,
Barium **lithium** tin telluride (BaLi0.5SnTe3) 216602-92-5,
Barium **lithium** tin telluride (BaLiSnTe3) 216602-93-6,
Barium **lithium** tin telluride (BaLi2SnTe3) 216602-94-7,
Barium **lithium** tin telluride (BaLi3SnTe3) 216602-95-8,
Barium **lithium** tin telluride (BaLi4SnTe3) 216602-96-9,
Barium **lithium** tin telluride (BaLi5SnTe3) 216602-97-0,
Barium **lithium** tin telluride (BaLi6SnTe3) 216602-98-1,
Barium **lithium** tin telluride (BaLi7SnTe3) 216602-99-2,
Barium **lithium** tin telluride (BaLi8SnTe3) 216603-00-8,
Barium **lithium** tin telluride (BaLi9SnTe3) 216603-01-9,
Barium **lithium** tin telluride (BaLi10SnTe3) 216603-02-0,
Barium **lithium** tin telluride (BaLi11SnTe3) 216603-03-1,
Barium **lithium** tin telluride (BaLi12SnTe3)
(**anode** in high-performance **nonaq**.-electrolyte **batteries**)

IT 130811-82-4, Cobalt **lithium** manganese oxide (Co0.2Li Mn1.8O4)
(**cathode** in high-performance **nonaq**.-electrolyte **batteries**)

L145 ANSWER 11 OF 19 HCA COPYRIGHT 2005 ACS on STN
128:169835 **Lithium** transition metal composite oxides and

$Sr(OH)_2$ - cathode
print out?

nonaqueous secondary **batteries** using them.
Matsuda, Yoshio; Takanishi, Keijiro; Tsukamoto, Jun (Toray Industries, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 10027610 A2 **19980127** Heisei, 8 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1996-180839 19960710.

AB The composite metal oxides, which can absorb and discharge **Li** ion, has Ih/Il .ltoreq.0.07 (Ih = Raman band intensity at 520-600 cm-1; Il = the intensity at 450-510 cm-1). The oxide may be Li1-x-aAxNi1-y-bQyO2 (I; A = Sr, Ba; Q = .gtoreq.1 transition metal; 0< x .ltoreq.0.10; 0< y .ltoreq. 0.30; a = -0.10-0.10; b = -0.15-0.15) or I (A = .gtoreq.2 alk. earth metal). Manuf. of the oxide by blending raw materials contg. **Li** and A and other raw materials contg. Ni and Q at stoichiometric ratio .gtoreq.0.90 and <1.00 and firing in an oxidn. atm. **Nonaq**. secondary **batteries** using the oxides as preferably **cathodes**, which have high capacitance and good charging-discharging characteristics.

IT **18480-07-4**, Strontium hydroxide
(**lithium**-absorbing transition metal composite oxide for **cathode** active mass from)

RN 18480-07-4 HCA

CN Strontium hydroxide (Sr(OH)2) (9CI) (CA INDEX NAME)

HO—Sr—OH

IC ICM H01M004-58
ICS C01G053-00; H01M004-02; H01M004-04; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium** composite oxide **nonaq** secondary **battery**; transition metal **lithium** oxide **battery cathode**; Raman band intensity ratio metal oxide

IT Carbon fibers, uses
(**anode** active mass; **lithium**-absorbing transition metal composite oxide for **cathode** active mass in **nonaq**. secondary **batteries**)

IT **Battery cathodes**
Secondary **batteries**
(**lithium**-absorbing transition metal composite oxide for **cathode** active mass in **nonaq**. secondary **batteries**)

IT 202915-55-7P
(**cathode** active mass; **lithium**-absorbing transition metal composite oxide for **cathode** active mass in **nonaq**. secondary **batteries**)

IT 1310-65-2, **Lithium** hydroxide (LiOH) 12054-48-7, Nickel hydroxide 12672-51-4, Cobalt hydroxide 17194-00-2, Barium

hydroxide **18480-07-4**, Strontium hydroxide
(**lithium**-absorbing transition metal composite oxide for **cathode** active mass from)

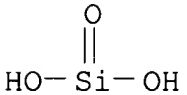
IT 202915-53-5P, Cobalt **lithium** nickel oxide (Co0.11Li1.02Ni0.89O2)
(strontium-doped **cathode** active mass; **lithium** -absorbing transition metal composite oxide for **cathode** active mass in **nonaq.** secondary **batteries**)

L145 ANSWER 12 OF 19 HCA COPYRIGHT 2005 ACS on STN Na_2SiO_3 in electrolyte.
128:50757 Fluorine-containing **lithium** salts and silicates for **nonaqueous** electrolyte secondary **batteries**.
Nishida, Nobumichi; Jinno, Maruo; Yamazaki, Kimiya; Noma, Toshiyuki; Nishio, Akiji (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09306541 A2 **19971128** Heisei, 8 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1996-146680 19960515.

AB The **batteries** have a carbonaceous material neg. **electrode** and a **nonaq.** electrolyte contg. a F-contg. **Li** salt and 0.1-10% silicate selected from xM12O.ySiO2, xM2O.ySiO2, and xM32O3.ySiO2, where M1-M3 = K, Na, Mg, Ca, Fe and Al, x = 1-2, and y = 1-4. The **batteries** show improved load characteristics.

IT **6834-92-0**
(additive; fluorine-contg. **lithium** salts and silicates for **nonaq.** electrolyte secondary **batteries**)

RN 6834-92-0 HCA
CN Silicic acid (H2SiO3), disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M010-40
ICS H01M010-40; H01M004-02; H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium** secondary **battery** silicate additive
IT Secondary **batteries**
(**lithium**; fluorine-contg. **lithium** salts and silicates for **nonaq.** electrolyte secondary **batteries**)
IT **6834-92-0** 10101-39-0 12135-35-2, Silicon sodium oxide (Si4Na2O9) 13472-30-5 13774-18-0 13870-28-5
(additive; fluorine-contg. **lithium** salts and silicates

for **nonaq**. electrolyte secondary **batteries**)

IT 14283-07-9, **Lithium** tetrafluoroborate 29935-35-1, **Lithium** hexafluoroarsenate 33454-82-9 90076-65-6
(electrolyte; fluorine-contg. **lithium** salts and silicates for **nonaq**. electrolyte secondary **batteries**)

IT 12190-79-3, Cobalt **lithium** oxide (LiCoO2)
(pos. active material; fluorine-contg. **lithium** salts and silicates for **nonaq**. electrolyte secondary **batteries**)

mono + di sodium highly relevant.

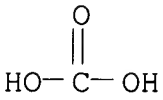
L145 ANSWER 13 OF 19 HCA COPYRIGHT 2005 ACS on STN
127:178778 Secondary **nonaqueous** electrolyte **batteries** containing salt additives. Fujimoto, Hiroshi; Tanaka, Mitsutoshi (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09180758 A2 **19970711** Heisei, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-336533 19951225.

AB The **batteries** contain a salt additive in their **cathodes**, **anodes**, electrolyte, and/or any void in the **batteries**. The salt is preferably carbonate, oxalate, nitrate, acetate, phosphate, and/or borate of **Li**, Na, K, Ce, Mg, Ca, Ba, and/or Mn. These **batteries** have long cycle life.

IT **144-55-8**, Sodium bicarbonate, uses
(salt additives for **lithium** cobaltate **cathodes** in **batteries**)

RN 144-55-8 HCA

CN Carbonic acid monosodium salt (8CI, 9CI) (CA INDEX NAME)



● Na

IC ICM H01M010-40
ICS H01M004-02; H01M004-62; H01M010-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

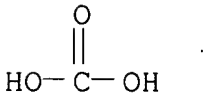
ST **battery** salt additive

IT **Battery cathodes**
(**lithium** cobaltate **cathodes** contg. salt additives for secondary **lithium batteries**)

IT Secondary **batteries**
(secondary **lithium batteries** contg. salt additives in **battery** members or voids in

battery case for cycle life)
IT 14283-07-9, **Lithium** fluoroborate 21324-40-3, **Lithium** hexafluorophosphate
(electrolytes contg. **lithium** hexafluorophosphate and **lithium** fluoroborate for secondary **lithium** **batteries** contg. salt additives)
IT 184347-49-7P
(manuf. of **anodes** for secondary **lithium** **batteries** contg. salt additives)
IT 12190-79-3, Cobalt **lithium** oxide (CoLiO2)
(salt additives for **lithium** cobaltate **cathodes** in **batteries**)
IT 62-76-0, Sodium oxalate **144-55-8**, Sodium bicarbonate, uses 471-34-1, Calcium carbonate, uses 534-17-8, Cesium carbonate 546-89-4, **Lithium** acetate 554-13-2, **Lithium** carbonate 598-62-9, Manganese carbonate (MnCO3) 7558-79-4, Disodium hydrogen phosphate 18365-41-8, Cesium oxalate
(salt additives for **lithium** cobaltate **cathodes** in **batteries**)

L145 ANSWER 14 OF 19 HCA COPYRIGHT 2005 ACS on STN NaHCO3 rel.
127:111259 **Nonaqueous** secondary **batteries** with sheet-type **electrodes** containing salt thin films.
Fujimoto, Hiroshi; Miyaki, Yukio (Fuji Photo Film Co., Ltd., Japan; Ube Industries, Ltd.). Jpn. Kokai Tokkyo Koho JP 09180703 A2 **19970711** Heisei, 13 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1995-338685 19951226.
AB Claimed **batteries** uses sheet-type **cathodes** and/or **anodes** having coated active mass on current collectors, where the **electrodes** have salts-contg. thin films on the active mass layers. The **batteries** have long cycle life.
IT **144-55-8**, Carbonic acid monosodium salt, uses
(**Li** ion **batteries** with sheet-type **electrodes** contg. salt thin films for long cycle life)
RN 144-55-8 HCA
CN Carbonic acid monosodium salt (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-02

ICS H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **cathode** salt film **nonaq battery**; **anode** salt film **nonaq battery**; salt film sheet **electrode battery**
IT **Battery anodes**
Battery cathodes
(**Li** ion **batteries** with sheet-type **electrodes** contg. salt thin films for long cycle life)
IT Borates
Carbonates, uses
Nitrates, uses
Phosphates, uses
(**Li** ion **batteries** with sheet-type **electrodes** contg. salt thin films for long cycle life)
IT Secondary **batteries**
(**lithium**; **Li** ion **batteries** with sheet-type **electrodes** contg. salt thin films for long cycle life)
IT 62-76-0, Sodium oxalate **144-55-8**, Carbonic acid monosodium salt, uses 546-89-4, **Lithium** acetate 553-91-3, **Lithium** oxalate 554-13-2, **Lithium** carbonate 598-62-9, Manganese carbonate 7790-69-4, **Lithium** nitrate
(**Li** ion **batteries** with sheet-type **electrodes** contg. salt thin films for long cycle life)

L145 ANSWER 15 OF 19 HCA COPYRIGHT 2005 ACS on STN No
127:111251 Secondary **nonaqueous** electrolyte **batteries**. Inoue, Hiroshi; Yasunami, Shoichiro; Inoue, Akiyuki (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09147916 A2 **19970606** Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-301298 19951120.
AB The **batteries** have a protective film contg. solid particles, a water sol. polymer, and optionally a conductive powder, applied on their **Li** intercalating **cathodes** and/or **anode** surface. The solid particles contains oxides of Na, K, Mg, Ca, Sr, Zr, Al and/or Si; and the polymer may be a poly(acrylic acid) or cellulose deriv. These **batteries** have high voltage and long cycle life.
IT **1313-59-3**, Sodium oxide, uses **1314-11-0**, Strontium oxide, uses **12136-45-7**, Potassium oxide, uses
(oxide-water sol. polymer coatings for **lithium** intercalating **electrodes** in **batteries**)
RN 1313-59-3 HCA
CN Sodium oxide (Na2O) (9CI) (CA INDEX NAME)

Na—O—Na

RN 1314-11-0 HCA
CN Strontium oxide (SrO) (6CI, 8CI, 9CI) (CA INDEX NAME)

O=Sr

RN 12136-45-7 HCA
CN Potassium oxide (K2O) (8CI, 9CI) (CA INDEX NAME)

K—O—K

IC ICM H01M010-40
ICS H01M004-02; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery electrode** oxide protection coating
IT **Battery electrodes**
(oxide-water sol. polymer coatings for **electrodes** in secondary **lithium batteries**)
IT 182203-62-9, Magnesium tin oxide silicate (Mg0.2SnO0.4(SiO3)0.8) 182203-65-2, Aluminum magnesium tin oxide silicate (Al0.2Mg0.2SnO0.3(SiO4)0.6) 182203-66-3, Magnesium tin oxide phosphate silicate (Mg0.2SnO0.3(PO4)0.2(SiO3)0.6) 182203-69-6 182319-19-3, Magnesium tin borate oxide silicate (Mg0.2Sn(BO3)0.2O0.3(SiO3)0.6) 182319-27-3, Magnesium tin borate phosphate silicate (Mg0.3Sn(BO3)0.1(PO4)0.1(SiO4)0.5)
(**lithium** intercalating **anodes** with oxide-water sol. polymer coatings for **batteries**)
IT 12190-79-3, Cobalt **lithium** oxide (CoLiO2)
(**lithium** intercalating **cathodes** with oxide-water sol. polymer coatings for **batteries**)
IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses **1313-59-3**, Sodium oxide, uses **1314-11-0**, Strontium oxide, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 9004-32-4 **12136-45-7**, Potassium oxide, uses
(oxide-water sol. polymer coatings for **lithium** intercalating **electrodes** in **batteries**)

L145 ANSWER 16 OF 19 HCA COPYRIGHT 2005 ACS on STN
127:83883 **Nonaqueous** electrolyte **batteries** with **lithium** containing manganese oxide **cathodes**.
Uehara, Mayumi; Yamazaki, Mikiya; Yanai, Atsushi; Noma, Toshiyuki; Nishio, Koji (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09139211 A2 **19970527** Heisei, 10 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1995-296818 19951115.

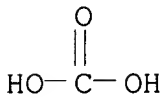
cathode add.

AB The **batteries** use **cathodes** composed of heat treated **Li** compd. and additive contg. MnO2, where the **Li** compd. is selected from LiOH, Li2CO3, and LiNO3 and is added at a **Li**/Mn mol ratio (1-30):(70-99); the additive is .gtoreq.1 of hydroxides, carbonates, and nitrates of element M selected Na, K, Rb, Cs, Fr, Be, Mg, Ca, Sr, Ba, Ra, Fe, Al, B, Si, P, Ga, Ge, As, Se, In, Sn, Sb, Te, Pb, Po, and At at a M/**Li** mol ratio (10-40):(60-90). The heat treatment is carried out at 270-380.degree.. These **batteries** have high capacity.

IT **1633-05-2**, Strontium carbonate **18480-07-4**, Strontium hydroxide
(**lithium** compd. and additive contg. heat treated manganese dioxide for **cathodes** in **lithium batteries**)

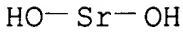
RN 1633-05-2 HCA

CN Carbonic acid, strontium salt (1:1) (8CI, 9CI) (CA INDEX NAME)



RN 18480-07-4 HCA

CN Strontium hydroxide (Sr(OH)2) (9CI) (CA INDEX NAME)



IC ICM H01M004-58
ICS H01M004-06; H01M004-08; H01M006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery cathode lithium** manganese oxide additive; heat treatment **lithium** manganese oxide **cathode**

IT **Battery cathodes**
(**lithium** compd. and additive contg. heat treated manganese dioxide for **cathodes** in **lithium batteries**)

IT 1313-13-9, Manganese dioxide, uses
(**lithium** compd. and additive contg. heat treated manganese dioxide for **cathodes** in **lithium batteries**)

IT 463-79-6D, Carbonic acid, arssenic salt, uses 463-79-6D, Carbonic acid, astatine salt, uses 463-79-6D, Carbonic acid, boron salts,

uses 463-79-6D, Carbonic acid, phosphorus salt, uses 463-79-6D, Carbonic acid, polonium salt, uses 463-79-6D, Carbonic acid, selenium salt, uses 463-79-6D, Carbonic acid, silicon salt, uses 463-79-6D, Carbonic acid, tellurium salt, uses 471-34-1, Calcium carbonate, uses 497-19-8, Sodium carbonate, uses 513-77-9, Barium carbonate 534-17-8, Cesium carbonate 546-93-0, Magnesium carbonate 554-13-2, **Lithium** carbonate 584-08-7, Potassium carbonate 584-09-8, Rubidium carbonate 598-63-0, Lead carbonate 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide 1310-58-3, Potassium hydroxide, uses 1310-65-2, **Lithium** hydroxide 1310-73-2, Sodium hydroxide, uses 1310-82-3, Rubidium hydroxide 1343-98-2, Silicon hydroxide **1633-05-2**, Strontium carbonate 7116-98-5, Radium carbonate 7631-99-4, Sodium nitrate, uses 7697-37-2D, Nitric acid, astatine salt, uses 7697-37-2D, Nitric acid, boron salt, uses 7697-37-2D, Nitric acid, germanium salt, uses 7697-37-2D, Nitric acid, phosphorus salt, uses 7697-37-2D, Nitric acid, selenium salt, uses 7697-37-2D, Nitric acid, silicon salt, uses 7757-79-1, Potassium nitrate, uses 7789-18-6, Cesium nitrate 7790-69-4, **Lithium** nitrate 10022-31-8, Barium nitrate 10042-76-9, Strontium nitrate 10043-35-3, Boric acid (H3BO3), uses 10099-74-8, Lead nitrate 10124-37-5, Calcium nitrate 10213-12-4, Radium nitrate [Ra(NO3)2] 10290-71-8, Iron carbonate 10377-60-3, Magnesium nitrate 11113-66-9, Iron hydroxide 12023-95-9, Francium hydroxide 12023-99-3, Gallium hydroxide 12027-17-7, Polonium hydroxide [Po(OH)4] 13106-47-3, Beryllium carbonate 13126-12-0, Rubidium nitrate 13327-32-7, Beryllium hydroxide 13464-58-9, Arsenous acid 13473-90-0, Aluminum nitrate 13494-90-1, Gallium nitrate 13597-99-4, Beryllium nitrate 13598-36-2, Phosphonic acid 13770-61-1, Indium nitrate 14104-77-9, Iron nitrate 14455-29-9, Aluminum carbonate 15021-18-8, Germanium hydroxide [Ge(OH)4] 17194-00-2, Barium hydroxide **18480-07-4**, Strontium hydroxide 19783-14-3, Lead hydroxide 20328-96-5, Antimony nitrate 20661-21-6, Indium hydroxide 21351-79-1, Cesium hydroxide 21645-51-2, Aluminum hydroxide, uses 39311-68-7, Tin hydroxide 41480-79-9, Tin nitrate 53216-05-0 60300-69-8, Selenium hydroxide [Se(OH)2] 60459-04-3, Indium carbonate 62362-19-0, Tellurium hydroxide 64535-94-0, Tellurium nitrate 85184-26-5, Francium nitrate 90031-84-8, Francium carbonate 91094-39-2, Arsenic nitrate 95925-37-4, Antimony carbonate [Sb2(CO3)3] 98966-86-0, Radium hydroxide [Ra(OH)2] 126331-89-3, Hypoastatous acid 127795-35-1 142712-19-4, Carbonic acid, gallium salt 150815-34-2, Carbonic acid, tin salt 152761-81-4, Antimony hydroxide
(**lithium** compd. and additive contg. heat treated manganese dioxide for **cathodes** in **lithium batteries**)

L145 ANSWER 17 OF 19 HCA COPYRIGHT 2005 ACS on STN No
126:10027 Secondary **nonaqueous**-electrolyte **lithium** **batteries** with improved **anodes**. Maekawa, Yukio; Myasaka, Tsutomu; Kagawa, Okimasa; Matsufuji, Akihiro (Fuji Photo Film Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08236158 A2 **19960913** Heisei, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-38742 19950227.

AB The **batteries** use light metal-intercalatable amorphous **anodes** which are heat treated under reducing atm., preferably contg. H and/or CO. The amorphous **anodes** may be MZ.pGO.qX where MZ = oxides or chalcogenides of group IIIA, IVA, and/or VA metals, preferably SnO, SnO2, SiO, and/or GeO; GO = amorphous net forming agents or net modifiers, preferably .gtoreq.1 oxide of Si, Al, B, Ca, Mg, P, **Li**, Na, K, and V; X = halogen, preferably F; p = 0.25-5 (mol. ratio of MZ:GO); and q .ltoreq.1 (mol. ratio of MZ:X). The amorphous **anodes** may be SnO.rSiO2.sGO with r = 0.1-2 and s = 0.1-2. The **batteries** may use electrolytes contg. a **Li** salt and ethylene carbonate solvent.

IT **1313-59-3**, Sodium oxide, processes **12136-45-7**, Potassium oxide, processes
(**battery anodes** from heat-treated amorphous oxides contg.)

RN 1313-59-3 HCA
CN Sodium oxide (Na2O) (9CI) (CA INDEX NAME)

Na—O—Na

RN 12136-45-7 HCA
CN Potassium oxide (K2O) (8CI, 9CI) (CA INDEX NAME)

K—O—K

IC ICM H01M010-40
ICS H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery anode** amorphous oxide heating; tin silicon oxide amorphous **battery anode**

IT **Battery anodes**
(from amorphous tin-silicon oxide heat treated in reducing atm.)

IT 183817-92-7
(**battery anodes** from heat-treated amorphous)

IT 15773-66-7
(**battery anodes** from heat-treated amorphous)

IT 1305-78-8, Calcia, processes 1309-48-4, Magnesia, processes **1313-59-3**, Sodium oxide, processes 11099-11-9, Vanadium

oxide 12057-24-8, **Lithium** oxide, processes **12136-45-7**, Potassium oxide, processes 18282-10-5, Tin oxide (SnO2) 20619-16-3, Germanium oxide (GeO) 113443-18-8, Silicon oxide (SiO)
(**battery anodes** from heat-treated amorphous oxides contg.)

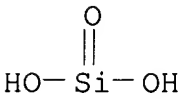
L145 ANSWER (18) OF 19 HCA COPYRIGHT 2005 ACS on STN Na_2SiO_3 in cath.
124:122122 Secondary **nonaqueous battery**. Tanaka, Mitsutoshi (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 687025 A1 **19951213**, 24 pp. DESIGNATED STATES: R: DE, FR, GB, IT. (English). CODEN: EPXXDW. APPLICATION: EP 1995-107217 19950512. PRIORITY: JP 1994-98673 19940512.

AB The **battery** comprising a **cathode** and an **anode** has a **cathode** active material mixt. which contains an acid contg. .gtoreq.1 of P, B, Si, Mo, and W or their salt. The **battery** has improved safety in case of abrupt temp. increase. The acid which is to be contained in the **cathode** active material mixt. includes H3PO4, H3BO3, H2MoO4, and H2WO4.

IT **6834-92-0**, Disodium metasilicate
(in **cathodes** of secondary **nonaq. battery**)

RN 6834-92-0 HCA

CN Silicic acid (H2SiO3), disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M010-00
ICS H01M004-58; H01M004-36; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** secondary **nonaq cathode**; phosphoric acid **nonaq battery cathode**; boric acid **nonaq battery cathode**; molybdic acid **nonaq battery cathode**; tungstic acid **nonaq battery cathode**; safety secondary **nonaq battery**

IT **Cathodes**
(**battery**, active material having acid contg. phosphorus and/or boron and/or silicon and/or molybdenum and/or tungsten for)

IT 1330-43-4, Disodium tetraborate 2466-09-3, Pyrophosphoric acid **6834-92-0**, Disodium metasilicate 7601-54-9, Trisodium phosphate 7631-95-0, Disodium molybdate 7664-38-2, Phosphoric acid, uses 7758-11-4, Dipotassium hydrogen phosphate 7758-29-4, Sodium polyphosphate (Na5P3O10) 7775-19-1, Sodium metaborate 7782-91-4, Molybdic acid 7783-03-1, Tungstic acid 7790-60-5 10006-28-7, Dipotassium metasilicate 10043-35-3, Boric acid, uses 10193-36-9, Silicic acid 10343-62-1, Metaphosphoric acid 10361-65-6, Ammonium phosphate 11120-25-5, Ammonium tungstate ((NH4)10W12O41) 12007-60-2, Dilithium tetraborate 12228-79-4, Pyroboric acid 13106-76-8, Diammonium molybdate 13446-49-6, Dipotassium molybdate 13453-80-0, **Lithium** dihydrogen phosphate 13460-50-9, Metaboric acid 13472-45-2, Disodium tungstate 13568-40-6 173103-44-1
(in **cathodes** of secondary **nonaq**. **battery**)

L145 ANSWER 19 OF 19 HCA COPYRIGHT 2005 ACS on STN not really
110:42058 Secondary **nonaqueous batteries** with carbonaceous **anode** supports. Sato, Yuichi; Inada, Kuniaki; Ikeda, Katsuharu; Nose, Hiroyoshi; Miyabayashi, Mitsutaka; Itsubo, Akira; Yui, Hiroshi; Komada, Megumi (Toshiba Battery Co., Ltd., Japan; Mitsubishi Petrochemical Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 63193462 A2 **19880810** Showa, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-22482 19870204.

AB The **batteries** have **Li** or **Li**-based **anode**-active mass loaded on particles of a carbonaceous material having a sp. surface area A >1 m2/g and comprising cryst. and amorphous structure units. The carbonaceous material has a H:C at. ratio r <0.15, a G <2.5 where G is the ratio of the Raman spectrum peak area of the material at 1580 .+-.100/cm wave no. to that at 1360 .+-. 100/cm wave no. using a 5145-.ANG.-wavelength Ar-laser light source, a spacing of the (002) planes d' >3.37 .ANG., and a unit-cell length in its c-axial direction L <150 .ANG.. The vol.-av. diam. of the structural units can be <200 .ANG. and the vol.-av. diam. d of the particles can be <100 .mu.m. Thus, o cresol 108, paraformaldehyde 32, Et cellosolve 240, and H2SO4 10 g were reacted at 115.degree., neutralized with 17 g **NaHCO3** and 30 g water. A mixt. of 2.25 g obtained Novolak resin and 0.25 g hexamine was melted, kneaded, heated at 250.degree. in N, sintered at 1750.degree. for 2 h in N, activated at 800-900.degree. for 2 h in a 0.5-g/sintered material-min steam flow and ground to obtain a carbonaceous material having r = 0.04, G = 0.60, d' = 3.60 .ANG., L = 15 .ANG., A = 20 m2/g, and d = 10 .mu.m. A 50-mg mixt. contg. 95% this material and 5% polyethylene was pressed to form a 0.5-mm-thick pellet and loaded with 1.0-mA-h **Li** by electrolysis at 0.5 mA/cm2 in a 1M **Li**+ soln. to obtain an **anode**. A **battery** using this **anode**, a V2O5-17.5 mol% WO3

cathode preloaded with 6.0 mA-h **Li** by electrolysis, and a 1M LiClO4/propylene carbonate electrolyte had a longer cycle life and smaller self-discharge than a control **battery**.

IC ICM H01M004-02
ICS H01M004-58; H01M004-62

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery lithium anode** polyacene support

IT Polyacenes
(**anode** supports, **lithium**, manuf. of, for **batteries**)

IT **Anodes**
(**battery, lithium**, polyacene supports for, manuf. of)

IT 7439-93-2, **Lithium**, uses and miscellaneous
(**anodes**, polyacene supports for, in **batteries**)

=> D L146 1-29 TI

L146 ANSWER 1 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Chemical power supply

L146 ANSWER 2 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous lithium** secondary **batteries**

L146 ANSWER 3 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Insoluble Fe(VI) compounds: effects on the super-iron **battery**

L146 ANSWER 4 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Electrochemical hydrogen and **lithium** absorption/desorption in Ti46Ni45Nb9 alloy in aqueous electrolytes

L146 ANSWER 5 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Anode** materials for secondary **nonaqueous** electrolyte **batteries**, their manufacture, and the **batteries**

L146 ANSWER 6 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous** secondary **batteries** and manufacture of **lithium** nickel mixed oxide **cathodes** for them

L146 ANSWER 7 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Anode** materials for secondary **nonaqueous batteries**, their manufacture, and the **batteries**

L146 ANSWER 8 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous batteries** with **anodes** containing carbonate additives

L146 ANSWER 9 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous battery**

L146 ANSWER 10 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous lithium batteries** with improved **cathodes**

L146 ANSWER 11 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous lithium batteries** and alkali or alkaline earth metal modified coke **anodes** of the **batteries**

L146 ANSWER 12 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous** secondary **batteries** and **anode** materials for these **batteries**

L146 ANSWER 13 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Anode** materials and secondary **batteries** using them

L146 ANSWER 14 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Organic-electrolyte secondary **battery**

L146 ANSWER 15 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous batteries** with active-carbon **cathode**

L146 ANSWER 16 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous**-electrolyte load-leveling **battery**

L146 ANSWER 17 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous batteries** and manufacture of their **cathode**-active mass

L146 ANSWER 18 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Vanadium bronze **cathodes** for **lithium batteries**

L146 ANSWER 19 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **batteries**

L146 ANSWER 20 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Secondary **nonaqueous batteries**

L146 ANSWER 21 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Porous film

L146 ANSWER 22 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Lithium battery**

L146 ANSWER 23 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Lithium battery**

L146 ANSWER 24 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Lithium battery**

L146 ANSWER 25 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Nonaqueous**-electrolyte **battery**

L146 ANSWER 26 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Batteries** with **nonaqueous** electrolyte

L146 ANSWER 27 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Organic electrolyte **battery**

L146 ANSWER 28 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI **Cathode** material for **nonaqueous** electrolyte **battery**

L146 ANSWER 29 OF 29 HCA COPYRIGHT 2005 ACS on STN
TI Fused **electrolytes** for fuel **cells**

=> D L146 2,5-20,22-28 CBIB ABS HITSTR HITIND

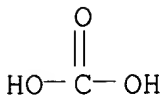
L146 ANSWER 2 OF 29 HCA COPYRIGHT 2005 ACS on STN B.D.
134:254647 **Nonaqueous lithium** secondary **batteries**. Segawa, Takeshi; Fui, Samu; Miyaki, Yukio; Tomita, Takashi (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2001084998 A2 20010330, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-262683 19990916.

AB The **batteries** comprise **Li**-intercalating **anodes** and **cathodes** comprising of **Li** Ni mixed oxides contg. **Li** carbonate, Na carbonate, and/or K carbonate. The **batteries** show large capacity even after repeated charge-discharge cycles.

IT **497-19-8**, Sodium carbonate, uses
(**nonaq. lithium** secondary **batteries** with **lithium** nickel oxide **cathodes** contg. **lithium**, sodium, and/or potassium carbonates)

RN 497-19-8 HCA

CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M004-02
ICS H01M004-58; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **nonaq lithium** secondary **battery** **cathode**; carbonate contg **lithium** nickel oxide **battery cathode**
IT Secondary **battery** separators
(**nonaq. lithium** secondary **batteries** with **lithium** nickel oxide **cathodes** contg. **lithium**, sodium, and/or potassium carbonates)
IT **497-19-8**, Sodium carbonate, uses 554-13-2, **Lithium** carbonate 584-08-7, Potassium carbonate
(**nonaq. lithium** secondary **batteries** with **lithium** nickel oxide **cathodes** contg. **lithium**, sodium, and/or potassium carbonates)
IT 113066-89-0P, Cobalt **lithium** nickel oxide (Co0.2LiNi0.8O2)
116327-68-5P, Cobalt **lithium** nickel oxide (Co0.3LiNi0.7O2)
(**nonaq. lithium** secondary **batteries** with **lithium** nickel oxide **cathodes** contg. **lithium**, sodium, and/or potassium carbonates)

L146 ANSWER 5 OF 29 HCA COPYRIGHT 2005 ACS on STN
127:208133 **Anode** materials for secondary **nonaqueous** electrolyte **batteries**, their manufacture, and the **batteries**. Kitamura, Kenichi; Imoto, Masahiro; Yamada, Shinichiro (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 09204918 A2 **19970805** Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-263479 19960912. PRIORITY: JP 1995-329782 19951125.

Kolt relevant.

AB The **anode** materials are carbonaceous materials contg. 0.1-5.0% (as the element) alkali metal, alk. earth metal, and/or P. The carbonaceous materials are formed by firing polymers, monomers, and/or O crosslinked pitch at 3000.degree. in an inert atm. and had interplanar spacing d002 .gtoreq.3.37.ANG.. The **anode** materials are prepd. by mixing compds. of the alkali metal, alk. earth metal, and/or P with a precursor for carbonaceous material and carbonizing the precursor. The **batteries** use **Li**

contg. multi oxide **cathodes** and **Li** intercalating **anodes** composed of the above described carbonaceous materials. These **batteries** have high capacity.

IT **1310-58-3**, Potassium hydroxide, uses
(additives in carbonaceous **anode** materials and manuf. of the **anode** materials for secondary **lithium batteries**)

RN 1310-58-3 HCA

CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K—OH

IC ICM H01M004-58
ICS H01M004-02; H01M010-40; C01B031-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium battery** carbonaceous **anode** additive; alkali metal additive carbonaceous **battery anode**; alk earth metal carbonaceous **anode battery**; phosphorus additive carbonaceous **anode lithium battery**

IT **Battery anodes**
(in manuf. of carbonaceous **anode** materials contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)

IT Acrylic polymers, processes
Aminoplasts
Epoxy resins, processes
Polyimides, processes
Polysiloxanes, processes
Polyurethanes, processes
(in manuf. of carbonaceous **anode** materials contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)

IT Carbonaceous materials (technological products)
(manuf. of carbonaceous **anode** materials contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)

IT Phenolic resins, processes
(novolak; in manuf. of carbonaceous **anode** materials contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)

IT Pitch
(oxygen crosslinked; in manuf. of carbonaceous **anode** materials contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)

IT Allylic compounds
(polymers; in manuf. of carbonaceous **anode** materials

contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)

IT Phenolic resins, processes
(resol; in manuf. of carbonaceous **anode** materials contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)

IT 1305-62-0, Calcium hydroxide, uses **1310-58-3**, Potassium hydroxide, uses 1314-56-3, Phosphorus pentoxide, uses 7447-40-7, Potassium chloride, uses
(additives in carbonaceous **anode** materials and manuf. of the **anode** materials for secondary **lithium batteries**)

IT 84-62-8, Phenyl phthalate 110-00-9D, Furan, derivs., polymers 9003-08-1, Melamine resin
(in manuf. of carbonaceous **anode** materials contg. alkali metals and alk. earth metals and phosphorus for secondary **lithium batteries**)

L146 ANSWER 6 OF 29 HCA COPYRIGHT 2005 ACS on STN NaOH in cath.
126:159797 **Nonaqueous** secondary **batteries** and manufacture of **lithium** nickel mixed oxide **cathodes** for them. Ozaki, Yoshuki; Yamaura, Junichi; Kobayashi, Shigeo (Matsushita Electric Ind Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08339806 A2 **19961224** Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-168077 19950609.

AB **Cathodes** contg. LiNi1-xMxO2 (M = Co or Al; x = 0.05-0.30) are manufd. by adding alkali solns. to aq. solns. contg. Co salts or Al salts and Ni salts for copptn. of composite hydroxides, formation of secondary particles by gathering single crystal particles to give spherical or spheroidal shapes, mixing with **Li** compds., and heating, preferably at 600-800.degree.. The **batteries** comprise the **cathodes** and **Li**-intercalating carbon **anodes**. The **batteries** have long cycle life.

IT **1310-73-2**, Sodium hydroxide, uses
(Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)

RN 1310-73-2 HCA

CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na—OH

IC ICM H01M004-58
ICS C01G053-00; H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **cathode lithium** nickel aluminum oxide; **lithium** nickel cobalt oxide **cathode**

battery

IT **Battery cathodes**
(Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)

IT Secondary **batteries**
(**lithium**; Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)

IT 113066-89-0P, Cobalt **Lithium** Nickel oxide (Co0.2LiNi0.8O2)
116327-68-5P, Cobalt **Lithium** Nickel oxide (Co0.3LiNi0.7O2)
116327-69-6P, Cobalt **Lithium** Nickel oxide (Co0.1LiNi0.9O2)
116327-70-9P, Cobalt **Lithium** Nickel oxide (Co0.05LiNi0.95O2)
(Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)

IT 1310-65-2, **Lithium** hydroxide **1310-73-2**, Sodium hydroxide, uses
(Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)

IT 61179-08-6P, Cobalt nickel hydroxide
(Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)

IT 7786-81-4, Nickel sulfate 10124-43-3, Cobalt sulfate
(Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)

IT 7782-42-5, Graphite, uses
(mesophase, **anodes**; Co- or Al-substituted **lithium** nickel mixed oxide **cathodes** manuf. for **batteries**)

L146 ANSWER 7 OF 29 HCA COPYRIGHT 2005 ACS on STN KOH, NaOH
125:253048 **Anode** materials for secondary **nonaqueous batteries**, their manufacture, and the **batteries**.
5834138 5972536
Yamada, Shinichiro; Akashi, Hiroyuki; Imoto, Hiroshi; Azuma, Hideto; Kitamura, Kenichi; Adachi, Momoe; Sasaki, Terue; Tanaka, Kohichi (Sony Corp., Japan). PCT Int. Appl. WO 9627911 A1 **19960912**, 49 pp. DESIGNATED STATES: W: CA, CN, JP, KR, US; RW: DE, FR, GB, IT, NL. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1996-JP548 19960306. PRIORITY: JP 1995-74611 19950306; JP 1995-212671 19950727; JP 1995-284582 19951004; JP 1995-328390 19951122.

AB The **anode** materials are carbonized coffee bean, tea leaf, cane, corns, fruits, straws, and/or chaff; carbonized plant polymers contg. 0.2-20 wt.% metals, P, and/or S; or a carbonaceous material having a diffraction peak at 2.theta. =30-32.degree. on their CuK.alpha. X-ray powder diffraction pattern. The **anode** materials are prepd. by firing coffee bean, tea leaf, cane, corns, fruits, straws, and/or chaff or a mixt. contg. a cryst. or fibrous cellulose and .gtoreq.1 of metal, P and S. The **batteries**

are secondary **Li batteries** using the above **anode** materials and **Li** contg. multiple oxide **cathodes**.

IT **1310-58-3**, Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide, uses
(additives in cellulose mixts. for manuf. of carbonaceous **anode** materials for secondary **lithium batteries**)

RN 1310-58-3 HCA
CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K—OH

RN 1310-73-2 HCA
CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na—OH

IC ICM H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery** carbonaceous material **anode**; plant tissue carbonized **anode** **lithium battery**

IT Carbonaceous materials
(carbonized plant derived materials for **anode** materials in secondary **lithium batteries**)

IT Chaff
Corn
Fruit
Rice
Straw
Sugarcane
(carbonized plant tissues for **anode** materials in secondary **lithium batteries**)

IT Banana
(peels; carbonized plant tissues for **anode** materials in secondary **lithium batteries**)

IT **Anodes**
(**battery**, carbonized plant derived materials and their manuf. of **anode** materials for secondary **lithium batteries**)

IT Coffee products
(beans, carbonized plant tissues for **anode** materials in secondary **lithium batteries**)

IT Fibers
(cellulosic, additives in cellulose mixts. for manuf. of

carbonaceous **anode** materials for secondary **lithium batteries**)

IT Tea products
(leaves, carbonized plant tissues for **anode** materials in secondary **lithium batteries**)

IT Mandarin orange
(tangerine, peels; carbonized plant tissues for **anode** materials in secondary **lithium batteries**)

IT 1305-62-0, Calcium hydroxide, uses 1309-42-8, Magnesium hydroxide **1310-58-3**, Potassium hydroxide, uses **1310-73-2**, Sodium hydroxide, uses 1343-98-2, Silicic acid 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 21645-51-2, Aluminum hydroxide, uses
(additives in cellulose mixts. for manuf. of carbonaceous **anode** materials for secondary **lithium batteries**)

IT 9004-34-6, Cellulose, processes
(additives in cellulose mixts. for manuf. of carbonaceous **anode** materials for secondary **lithium batteries**)

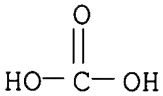
L146 ANSWER 8 OF 29 HCA COPYRIGHT 2005 ACS on STN Na_2CO_3 in graphite anode.
125:119576 Secondary **nonaqueous batteries** with **anodes** containing carbonate additives. Inoe, Kaoru; Ozaki, Yoshuki; Koshina, Hide; Morita, Teruyoshi (Matsushita Electric Ind Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08138743 A2 **19960531** Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-279120 19941114.

AB **Li batteries** use **anodes** contg. .gtoreq.1 carbonate salts of alkali metals, alk. earth metals, and transition metals. These **batteries** have suppressed dendrite growth.

IT **497-19-8**, Sodium carbonate, uses
(graphite **anodes** contg. carbonate salt additives in secondary **lithium batteries** for dendrite growth prevention)

RN 497-19-8 HCA

CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M004-02; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **lithium battery anode** carbonate salt additive; alkali metal carbonate **lithium battery anode**; alk earth carbonate **lithium battery anode**; transition metal carbonate **lithium battery anode**
IT Alkali metal compounds
Alkaline earth compounds
Transition metal compounds
(carbonates; graphite **anodes** contg. carbonate salt additives in secondary **lithium batteries** for dendrite growth prevention)
IT **Anodes**
(**battery**, graphite **anodes** contg. carbonate salt additives in secondary **lithium batteries** for dendrite growth prevention)
IT 7782-42-5, Graphite, uses
(graphite **anodes** contg. carbonate salt additives in secondary **lithium batteries** for dendrite growth prevention)
IT **497-19-8**, Sodium carbonate, uses 554-13-2, **Lithium** carbonate
(graphite **anodes** contg. carbonate salt additives in secondary **lithium batteries** for dendrite growth prevention)

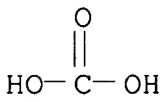
L146 ANSWER 9 OF 29 HCA COPYRIGHT 2005 ACS on STN Na_2CO_3
124:122131 Secondary **nonaqueous battery**. Takahashi, Osamu; Tanaka, Mitsutoshi (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 689255 A2 **19951227**, 35 pp. DESIGNATED STATES: R: DE, FR, GB, IT. (English). CODEN: EPXXDW. APPLICATION: EP 1995-107873 19950523. PRIORITY: JP 1994-108287 19940523; JP 1994-235244 19940929.
AB An enclosed **nonaq. battery** includes a group of **cathodes** and **anodes** allowing absorption and release of a light metal and separators accommodated in a closed-end armoring can together with a **nonaq**. electrolyte and an opening of the armoring can is closed by an insulating gasket positioned around the inner periphery of the opening of the can and a closing lid fitted in and supported by the gasket and simultaneously serving as a pos. or neg. terminal. The closing lid comprises an explosion-proof valve capable of deforming towards the direction opposite to the group of **electrodes** in response to an increase in the internal pressure of the **battery**, a terminal cap provided with vent holes and arranged at the side of the explosion-proof valve opposed to the group of **electrodes**

and a nonreverse type switch which is positioned between the explosion-proof valve and the terminal cap and serves to shut-off the elec. connection between the terminal cap and the **cathode** or **anode** when the temp. of the **battery** or the pressure in the **battery** is increased. The **battery** construction permits shutting off of the elec. connections within the **battery** when its temp. and/or internal pressure increase.

IT **497-19-8**, Sodium carbonate, uses
(alkali metal- and esp. **lithium**-ion **nonaq.** **battery cathodes** contg.)

RN 497-19-8 HCA

CN Carbonic acid disodium salt (8CI, 9CI) (CA INDEX NAME)



●2 Na

IC ICM H01M002-12
ICS H01M002-34; H01M004-62

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** secondary **nonaq** safety

IT Electric switches and switching
(alkali metal- and esp. **lithium**-ion **nonaq.** **batteries** contg. shape memory alloy)

IT **Batteries**, secondary
(design of safe **nonaq.** alkali metal- and esp. **lithium**-ion)

IT Safety
(design of secondary alkali metal- and esp. **lithium**-ion **nonaq.** **batteries** for)

IT 471-34-1, Calcium carbonate, uses **497-19-8**, Sodium carbonate, uses 513-77-9, Barium carbonate 546-93-0, Magnesium carbonate 584-08-7, Potassium carbonate 584-09-8, Rubidium carbonate
(alkali metal- and esp. **lithium**-ion **nonaq.** **battery cathodes** contg.)

L146 ANSWER 10 OF 29 HCA COPYRIGHT 2005 ACS on STN

123:291839 **Nonaqueous lithium batteries** with improved **cathodes**. Uehara, Mayumi; Shoji, Yoshihiro; Yamazaki, Mikya; Nishio, Koji; Saito, Toshihiko; Maeda, Takeshi (Sanyo Electric Co, Japan). Jpn. Kokai Tokkyo Koho JP 07192721 A2

19950728 Heisei, 10 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1994-257623 19940926. PRIORITY: JP 1993-314533 19931118.

AB The **batteries** consisting of **Li anodes** and **cathode** masses contg. **Li**-transition metal mixed oxide LixNi1-yMyOz (0<x<1.3, 0.ltoreq.y.ltoreq.1, 1.8<z<2.2, M = Co or Co-contg. transition metals) are treated with 0.1-20 mol% (to the **cathode** masses) salts and/or hydroxides of Na, Mg, Al, K, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and/or Zn. The salts may contain C (e.g., as carbonates). Preferably, the salts are Co carbonate and/or Ni carbonate. The **batteries** have high-temp. storage stability.

IT **1310-58-3**, Potassium hydroxide, uses
(**cathodes** contg. **lithium**-transition metal mixed oxide added with metal salts and/or hydroxides for **nonaq. batteries**)

RN 1310-58-3 HCA

CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K—OH

IC ICM H01M004-02
ICS H01M004-58; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium** transition metal oxide **cathode**; **battery cathode** transition metal oxide; carbonate metal oxide **cathode battery**; hydroxide metal oxide **cathode battery**

IT Hydroxides
(**cathodes** contg. **lithium**-transition metal mixed oxide added with metal salts and/or hydroxides for **nonaq. batteries**)

IT Carbonates, uses
(metal; **cathodes** contg. **lithium**-transition metal mixed oxide added with metal salts and/or hydroxides for **nonaq. batteries**)

IT **Cathodes**
(**battery, cathodes** contg. **lithium** -transition metal mixed oxide added with metal salts and/or hydroxides for **nonaq. batteries**)

IT 7439-93-2, **Lithium**, uses
(**anode; cathodes** contg. **lithium** -transition metal mixed oxide added with metal salts and/or hydroxides for **nonaq. batteries**)

IT 101920-93-8P, Cobalt **lithium** nickel oxide (Co0.5LiNi0.5O2)
(**cathode; cathodes** contg. **lithium** -transition metal mixed oxide added with metal salts and/or

hydroxides for **nonaq. batteries**)

IT 127-08-2, Potassium acetate 583-52-8, Potassium oxalate 584-08-7, Potassium carbonate 1305-62-0, Calcium hydroxide, uses **1310-58-3**, Potassium hydroxide, uses 1344-67-8, Copper chloride 1344-69-0, Copper hydroxide 3333-67-3, Nickel carbonate 7447-40-7, Potassium chloride, uses 7542-09-8, Cobalt carbonate 7647-14-5, Sodium chloride, uses 7786-30-3, Magnesium chloride, uses 11113-66-9, Iron hydroxide 12054-48-7, Nickel hydroxide 12626-43-6, Chromium hydroxide 12626-88-9, Manganese hydroxide 12651-23-9, Titanium hydroxide 12672-51-4, Cobalt hydroxide 17674-34-9, Scandium hydroxide 20427-58-1, Zinc hydroxide 21645-51-2, Aluminum hydroxide, uses 102857-58-9, Vanadium hydroxide
(**cathodes** contg. **lithium**-transition metal mixed oxide added with metal salts and/or hydroxides for **nonaq. batteries**)

L146 ANSWER 11 OF 29 HCA COPYRIGHT 2005 ACS on STN KOH treated coke anode.
121:234669 Secondary **nonaqueous lithium batteries** and alkali or alkaline earth metal modified coke **anodes** of the **batteries**. Fujii, Masaki; Nakagawa, Takaisa; Ueno, Koji; Fujimoto, Masahisa; Yoshinaga, Noryuki; Nishio, Koji; Furukawa, Sanehiro (Koa Oil Co Ltd, Japan; Sanyo Electric Co). Jpn. Kokai Tokkyo Koho JP 06187986 A2 **19940708** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-170235 19920603.

AB The **batteries** use coke having O contg. functional groups and active centers for their **anodes**, where the activities of the functional groups and active centers are suppressed by binding with alkali or alk. earth metals. **Li batteries** using these **anodes** have high capacity and long shelf and cycle lives.

IT **1310-58-3**, Potassium hydroxide, uses
(secondary **nonaq. lithium batteries** and alkali or alk. earth metal modified coke **anodes** of the **batteries**)

RN 1310-58-3 HCA

CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K—OH

IC ICM H01M004-58
ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium battery** coke **anode**

IT Coke
(potassium hydroxide treated; secondary **nonaq.**

lithium batteries and alkali or alk. earth metal modified coke **anodes** of the **batteries**)

IT **Batteries**, secondary
(secondary **nonaq. lithium batteries** and alkali or alk. earth metal modified coke **anodes** of the **batteries**)

IT Alkali metals, uses
Alkaline earth metals
(secondary **nonaq. lithium batteries** and alkali or alk. earth metal modified coke **anodes** of the **batteries**)

IT **Anodes**
(**battery**, alkali and alkali or alk. earth metal modified coke **anodes** of secondary **lithium batteries**)

IT **1310-58-3**, Potassium hydroxide, uses
(secondary **nonaq. lithium batteries** and alkali or alk. earth metal modified coke **anodes** of the **batteries**)

L146 ANSWER 12 OF 29 HCA COPYRIGHT 2005 ACS on STN Kolt

121:209267 **Nonaqueous** secondary **batteries** and **anode** materials for these **batteries**. Fujii, Masaki; Nakagawa, Takaisa; Ueno, Koji; Fujimoto, Masahisa; Yoshinaga, Noryuki; Nishio, Koji; Furukawa, Sanehiro (Koa Oil Co Ltd, Japan; Sanyo Electric Co). Jpn. Kokai Tokkyo Koho JP 06187987 A2 **19940708** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-170236 19920603.

AB The **batteries** use coke of BET sp. surface area .gtoreq.100 m2/g and spacing of (00) planes .gtoreq.3.37 .ANG. as **anode** materials. The coke with crystallite size in the direction of c axis .ltoreq.600 .ANG. is also claimed. The coke may be prepd. by activation for removing tar hydrocarbons from the pores. The coke can intercalates large amt. of **Li**, and the **batteries** show high discharging capacity.

IT **1310-58-3**, Potassium hydroxide, uses
(in activation of coke for hydrocarbon removal from pores for use as **anodes** for **nonaq.**-electrolyte **batteries**)

RN 1310-58-3 HCA

CN Potassium hydroxide (K(OH)) (9CI) (CA INDEX NAME)

K—OH

IC ICM H01M004-58
ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **lithium battery anode** coke; activation coke **lithium battery anode**

IT Coke
(for **lithium anodes** of **nonaq**.-electrolyte **batteries**)

IT **Anodes**
(**battery**, activation of coke for hydrocarbon removal from its pores for **nonaq**.-electrolyte)

IT 7439-93-2, **Lithium**, uses
(coke for **nonaq**.-electrolyte **battery anodes** of)

IT **1310-58-3**, Potassium hydroxide, uses
(in activation of coke for hydrocarbon removal from pores for use as **anodes** for **nonaq**.-electrolyte **batteries**)

L146 ANSWER 13 OF 29 HCA COPYRIGHT 2005 ACS on STN NaOH treated carbon
120:249343 **Anode** materials and secondary **batteries** using them. Suzuki, Tatsuhiko; Tsukamoto, Jun (Toray Industries, Japan). Jpn. Kokai Tokkyo Koho JP 06020690 A2 **19940128** Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-180078 19920707.

AB The **anode** materials comprise carbonaceous materials with amorphous surfaces and/or surfaces treated by surface oxidn. Secondary **batteries** with these **anodes** use **nonaq**. electrolytes contg. **Li** salts (electrolytes) dissolved in **nonaq**. solvents. The **batteries** have high charging and discharging capacities.

IT **1310-73-2**, Sodium hydroxide, reactions
(in oxidn. of carbonaceous materials for amorphization of **anodes** for secondary **batteries**)

RN 1310-73-2 HCA

CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na—OH

IC ICM H01M004-58
ICS C01B031-02; H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery anode** carbonaceous material; oxidn carbonaceous material **battery anode**; amorphization carbonaceous material **battery anode**; **lithium battery anode** carbonaceous material

IT Carbonaceous materials
(amorphization of surfaces of, by oxidn., for **anodes** for secondary **batteries**)

IT Amorphization
(of carbonaceous material surfaces, by oxidn., for **anodes** for secondary **batteries**)
IT Oxidation, electrochemical
(of carbonaceous material surfaces, for amorphization, for **anodes** for secondary **batteries**)
IT **Anodes**
(**battery**, carbonaceous materials, with oxidized and amorphized surfaces)
IT Oxidation
(gas-phase, of carbonaceous material surfaces, for amorphization, for **anodes** for secondary **batteries**)
IT Carbon fibers, reactions
(graphite, amorphization of surfaces of, by oxidn., for **anodes** for secondary **batteries**)
IT Oxidation
(liq.-phase, of carbonaceous material surfaces, for amorphization, for **anodes** for secondary **batteries**)
IT 7439-93-2, **Lithium**, uses
(**anodes** for secondary **batteries** contg., amorphization of carbonaceous material surfaces for)
IT 7440-44-0 7782-42-5
(carbon fibers, graphite, amorphization of surfaces of, by oxidn., for **anodes** for secondary **batteries**)
IT **1310-73-2**, Sodium hydroxide, reactions 7664-93-9, Sulfuric acid, reactions
(in oxidn. of carbonaceous materials for amorphization of **anodes** for secondary **batteries**)

L146 ANSWER (14) OF 29 HCA COPYRIGHT 2005 ACS on STN NO
118:84488 Organic-electrolyte secondary **battery**. Sekai, Koji (Sony Corp., Japan). Jpn. Kokai Tokkyo Koho JP 04272668 A2 **19920929** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-53655 19910227.

AB The **battery** comprises an inorg. compd. (as a **cathode** active material) whose surface is chem. modified with an org. compd. The treatment inhibits OH groups (on the active material surface) reacting with the electrolyte, and prevent crystal structure deformation of the active material. Thus, LiCoO2 was treated with **NaOH** and isopropyltri[(N-aminoethyl)titanate] coupling agent to give a **cathode** active material. A **Li battery** using the **cathode**, **Li anode**, and LiPF6-dissolved propylene carbonate-1,2-dimethoxyethane electrolyte showed resistance to voltage drop by repeated charge-discharge cycling.

IC ICM H01M010-40
ICS H01M004-02

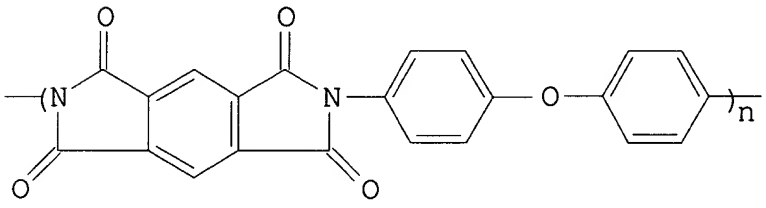
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery nonaq** electrolyte **cathode** surface modification; **lithium battery cathode** surface modification; cobalt **lithium** oxide **battery cathode**; hydroxy removal **lithium battery cathode**
IT Coupling agents
(in hydroxy group removal from org. compd. surfaces, for **cathode** active materials for **nonaq**.-electrolyte secondary **batteries**)
IT Hydroxyl group
(removal of, from **cathode** active material surfaces, for org.-electrolyte secondary **batteries**)
IT **Cathodes**
(**battery**, **nonaq**.-electrolyte, hydroxy group removal from surfaces of, by coupling with org. compd.)
IT 65380-84-9, Isopropyl[(N-aminoethyl)aminoethyl]titanate
(coupling agent, **cathode** active materials treated with, for surface hydroxy removal, for secondary **batteries**)
IT 12190-79-3
(hydroxy group removal from surface of, for **cathodes** for **lithium** secondary **batteries**)

L146 ANSWER 15 OF 29 HCA COPYRIGHT 2005 ACS on STN KOH treated.
110:138702 Secondary **nonaqueous batteries** with active-carbon **cathode**. Morimoto, Takeshi; Yoshida, Naoki (Asahi Glass Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 63264870 A2 **19881101** Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-96334 19870421.
AB The **batteries** have **Li**-Al **anodes** and **cathodes** prepd. from active C powder. The active C powder preferably has a sp. surface area A = 2000-3500 m2/g, apparent d. d = 0.2-1.0 g/mL, and pore vol. V = 0.5-3.0 mL/g. Thus, -40-mesh petroleum coke was mixed at 1:3 with **KOH**, heated at 385.degree. for 1 h and at 840.degree. for 2 h in N, cooled, washed, and vacuum dried at 110.degree. to obtain an active C having A = 3000 m2/g, d = 0.308 g/mL, and V = 1.0 mL/g. A **battery** using a **Li**-50 at.% Al **anode** and a **cathode** contg. the prepd. active C 70, carbon black 20, and PTFE 10% had capacities 4.45 and 4.29 mA-h at the 5th and 50th charge-discharge cycles, resp., when cycled at 1.0 mA between 1.0 and 3.5 V, vs. 3.05 and 2.44 mA-h for a **battery** using active carbon having A = 1500 m2/g and prepd. from coconut shell.
IC ICM H01M004-58
ICS H01M004-40; H01M004-46
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** active carbon **cathode**; petroleum coke activation carbon **cathode**

IT **Cathodes**
(**battery**, active carbon, manuf. of, from petroleum coke)
IT Coke
(petroleum, activation of, for active-carbon **cathode** in **batteries**)
IT 7440-44-0, Carbon, uses and miscellaneous
(activated, **cathodes**, from petroleum coke, for **batteries**)

L146 ANSWER 16 OF 29 HCA COPYRIGHT 2005 ACS on STN
110:79327 **Nonaqueous**-electrolyte load-leveling **battery** No
. Morimoto, Takeshi; Yoshida, Naoki (Asahi Glass Co., Ltd., Japan).
Jpn. Kokai Tokkyo Koho JP 63216272 A2 **19880908** Showa, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-46815 19870303.

GI



I

AB The title **battery** has active C-based **cathodes** and **anodes** of partly graphitized carbonaceous material prepd. from arom. N-contg. condensation polymer. The carbonaceous material preferably has a H:C at. ratio r <0.35 and the spacing of (002) planes d >3.37 .ANG., and is preferably prepd. from arom. polyimide, polyamide, polyamidoimide, polyoxydiazole, and polybenzimidazole. The **cathode** is prepd. from active C having a sp. surface area A = 1500-3500 m2/g. Thus, polymer I was heated at 2000.degree. for 1 h in N to obtain a carbonaceous material having r = 0.09 and d = 3.443 .ANG., which was mixed with polyethylene, and pressed to form an **anode**. Petroleum coke was ground to -40 mesh, coated with **KOH**, presintered at 385.degree. for 1 h and sintered at 840.degree. for 2 h in N, cooled, washed, and dried at 110.degree. in vacuum to obtain active C having A = 3000 m2/g, which was mixed with carbon black and PTFE, rolled into a sheet, expanded for 1.1 times in 1 direction at 300.degree., and punched to obtain a **cathode**. A **battery** was prepd. by using the prepd. **cathode**, a 1M LiClO4/propylene carbonate electrolyte, and the prepd. **anode** precharged in the same electrolyte with a **Li**

counterelectrode. When cycled at 0.5 mA between 1.0 and 3.5 V, the capacity of the **battery** decreased from 3.30 mA-h at the 5th cycle to 3.04 mA-h at the 50th cycle, vs. a decrease from 2.89 to 0.72 mA-h for a **battery** with the **anode** contg. carbonaceous material prepd. from PVC and having r = 0.04 and d = 3.405 .ANG..

IC ICM H01M010-40
ICS H01M004-02; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST load leveling **battery anode**; **lithium** graphite carbonaceous **anode**

IT **Anodes**
(**battery**, **lithium**-contg., graphitized carbonaceous, **nonaq**. load-leveling)

IT 7439-93-2, **Lithium**, uses and miscellaneous
(**anodes** contg., graphitized carbonaceous, for **nonaq**. load-leveling **batteries**)

IT 24938-64-5 25036-53-7 28576-59-2
(pyrolysis of, for **anodes** for **lithium** **nonaq**. load-leveling **batteries**)

L146 ANSWER 17 OF 29 HCA COPYRIGHT 2005 ACS on STN

108:170848 **Nonaqueous batteries** and manufacture of their **cathode**-active mass. Yasuda, Hideo (Japan Storage Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 63019760 A2 **19880127** Showa, 6 (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-163233 19860710.

AB The title **batteries** have **cathodes** of Ni-Co oxyhydroxide mixt. contg. 20-75 wt.% Co and propylene carbonate or .gamma.-butyrolactone as electrolyte solvent. Thus, a pH 1.0 mixt. of Co and Ni nitrates (d20. 1.60) having a Co/(Co + Ni) wt. ratio = 50% was heated at 230.degree. for 1 h, mixed with a **NaOH** soln. (d. 1.20), the formed ppt. was washed, dried at 110.degree., pulverized, elec. oxidized in a **KOH** soln. (d. 1.05) for 5 h at a c.d. of 0.1 A/g ppt., the oxidized ppt. was dried at 130.degree. for 2 h, mixed with 10 graphite and 5% PTFE, and pressed to obtain a **cathode** disk. A **battery** using this **cathode**, a **Li anode**, and a 1M LiClO4/propylene carbonate showed an output voltage of 2.4-2.7 V when discharged through a 20-k.OMEGA. load and a 20% decrease in discharge duration after 15 charge-discharge cycles between 1.5 and 4.5 V at 2 mA, whereas **batteries** using **cathode** active mass dried at <125.degree. or >225.degree. had shorter discharge duration.

IC ICM H01M004-52
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **cathode battery** nickel cobalt oxyhydroxide

IT **Cathodes**
(**battery**, nickel-cobalt oxyhydroxide, for **nonaq**
. **batteries**)
IT 12016-80-7, Cobalt oxyhydroxide
(**cathodec** contg., nickel oxyhydroxide, for
nonaq. batteries)
IT 55070-72-9
(**cathodes**, contg. cobalt oxyhydroxide, for
nonaq. batteries)
IT 7681-52-9, Sodium hypochlorite 7727-21-1
(oxidizing agent, in nickel-cobalt oxyhydroxide manuf., for
battery cathodes)

L146 ANSWER 18 OF 29 HCA COPYRIGHT 2005 ACS on STN
108:41130 Vanadium bronze **cathodes** for **lithium**
batteries. Okada, Shigeto; Ootsuka, Hideaki; Okada, Takeshi
(Nippon Telegraph and Telephone Public Corp., Japan). Jpn. Kokai
Tokkyo Koho JP 62195854 A2 **19870828** Showa, 6 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-34981 19860221.
AB V bronze NaxV2O5 (x = 0.15-0.4) is used as **cathode** active
material for **Li batteries**. Thus, a 70:25:5
mixt. of Na0.3V2O5 (prepd. from **Na2CO3** and V2O5),
acetylene black, and PTFE was pelletized to obtain **cathodes**
. A **battery** having the prepd. **cathode**, a
Li anode, and an electrolyte of 1.5N
LiAsF6/2-methyltetrahydrofuran showed longer cycle life than a
battery using a V2O5 **cathode**.
IC ICM H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST sodium vanadium oxide **battery cathode**
IT **Cathodes**
(**battery**, sodium vanadium oxide)
IT 107591-89-9 112286-63-2 112286-64-3
(**cathodes**, for **nonaq. batteries**)

L146 ANSWER 19 OF 29 HCA COPYRIGHT 2005 ACS on STN
107:180171 Secondary **batteries**. Shishikura, Riichi; Konuma,
Hiroshi; Nakamura, Hidenori; Sakai, Toshiyuki; Takeuchi, Masataka;
Kobayashi, Masao (Showa Denko K. K., Japan; Hitachi, Ltd.). Jpn.
Kokai Tokkyo Koho JP 62150657 A2 **19870704** Showa, 7 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-290443 19851225.
AB **Li** is electrochem. deposited on Al or Al alloy to form an
anode alloy having a **Li**:Al at. ratio r <0.6 for
use in secondary **nonaq. batteries**. The
deposition can be carried out on only 1 side of Al or Al alloy to
form the **anode** with the other side serving as an
anode collector. A 120-.mu. Al plate was pretreated with
aq. **NaOH**, cut into a 15-mm-diam. piece, connected with a

Ni collector on 1 side, and **Li** was deposited on the opposite side from a **Li electrode** at 1 mA/cm2 to r = 0.5 with a glass-fiber separator in between. The separator was impregnated with a 1M LiBF4/1:1 (vol.) propylene carbonate-MeOC2H4OMe electrolyte. A **battery** using this alloy as **anode**, a polyaniline **cathode**, and a 1M LBF4/1:1 (vol.) propylene carbonate-MeOC2H4OMe electrolyte had a lifetime (current efficiency decreased to 50%) of 425 charging-discharging cycles and an energy d. of 121 W-h/kg (**cathode** + **anode**) vs. 115 cycles and 117 W-h/kg for a **battery** using on **anode** prepd. by pressing com. Al-50 at.% **Li** alloy powders.

IC ICM H01M004-40
ICS H01M004-02; H01M004-04

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

ST **battery** aluminum **lithium** alloy **anode**

IT **Anodes**
(**battery**, aluminum-**lithium** alloy for, manuf. by electrochem. deposition of)

IT 37197-42-5P 66594-53-4P, Aluminum 67, **lithium** 33(at.) 110869-98-2P 110869-99-3P
(**anodes**, manuf. of, by electrochem. deposition, for secondary **batteries**)

L146 ANSWER 20 OF 29 HCA COPYRIGHT 2005 ACS on STN

107:26112 Secondary **nonaqueous batteries**. Sakai, Toshiyuki; Shishikura, Riichi; Konuma, Hiroshi; Nakamura, Hidenori; Takeuchi, Masataka; Kobayashi, Masao (Showa Denko K. K., Japan; Hitachi, Ltd.). Jpn. Kokai Tokkyo Koho JP 62093863 A2 **19870430** Showa, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-233178 19851021.

AB A secondary **nonaq. battery** has a **cathode** of polypyrroles; an **anode** of **Li**, a **Li** alloy, a conductive polymer, or a combination of the polymer with **Li** or **Li** alloy; and an electrolyte of an alkali metal salt dissolved in an org. solvent with the **cathode** being treated with an alkali. A pair of Pt **electrode** were immersed in a mixt. of pyrrole 40, Na laurylsulfonate 40, poly(ethylene glycol) 20, distd. H2O 1600 wt. parts, and heptane 50 mL, a 2-A current was passed between the **electrodes** for 30 min to obtain a polypyrrole film on 1 **electrode**, the film was polished, washed with distd. H2O and heptane, dried at 50.degree. in vacuum for 24 h to form a film having a smooth 1st layer on the **electrode** side, a porous 2nd layer, and a top 3rd layer less porous than the 2nd layer. The film was removed from the **electrode**, extd. with distd. H2O in a Soxhlet extractor for 15 h, dried at 50.degree. in vacuum for 24 h, immersed

twice in 28% NH4OH for 3 h with 15 min ultrasonic treatment each time, washed with distd. water, dried at 50.degree. for 1 h and at 80.degree. in vacuum for 12 h, and cut to form a 20-mm-diam. **cathode**. A **battery** using this **cathode**, a **Li anode**, and 0.8M LiPF6-2-Me THF electrolyte was cycled at 1.0-mA/cm2 charging to a 45 mol% doping of the **cathode** and 1.5-mA/cm2 discharging to 1.5 V cutoff. The **battery** had a lifetime of 368 cycles (efficiency decreased to 50%), a max. efficiency of 100%, an energy d. of 452 W-h/kg, and a self discharge ratio of 3.8% after a 48-h standing whereas a **battery** using a **cathode** not treated with NH4OH had a lifetime of 220 cycles, an energy d. of 388 W-h/kg, and a self discharge ratio of 6.8%.

IT **1310-73-2**, Sodium hydroxide, uses and miscellaneous
(**cathodes** from polypyrroles treated by, for **nonaq**. secondary **batteries**)

RN 1310-73-2 HCA

CN Sodium hydroxide (Na(OH)) (9CI) (CA INDEX NAME)

Na—OH

IC ICM H01M004-60
ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **battery** polypyrrole **cathode** ammonia treatment

IT **Cathodes**
(**battery**, alk.-treated polypyrroles for, manuf. of)

IT **1310-73-2**, Sodium hydroxide, uses and miscellaneous
1336-21-6, Ammonium hydroxide
(**cathodes** from polypyrroles treated by, for **nonaq**. secondary **batteries**)

IT 30604-81-0P, Polypyrrole 72945-64-3P, N-Methylpyrrole-pyrrole copolymer
(**cathodes**, alk.-treated, manuf. of, for **nonaq** . secondary **batteries**)

L146 ANSWER 22 OF 29 HCA COPYRIGHT 2005 ACS on STN

104:12276 **Lithium battery**. (Institute for Production and Development Science, Japan). Jpn. Kokai Tokkyo Koho JP 60124354 A2 **19850703** Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-231161 19831206.

AB A **nonaq**. **battery** has a **Li anode** and **cathode** active material composed of CuCoO2. CuCoO2 is an anhyd. anisotropic semiconductor that provides a good ion diffusion rate when oriented by pressing, and the **battery** has high capacity, good discharge property, and

stable voltage. Thus, a 1:1 mol. ratio mixt. of Cu2O and Co oxyhydroxide was mixed with .gtoreq.1M **NaOH**, hydrothermally treated (330.degree., 12 h), and rapidly cooled to obtain a fine ppt. (diam. 0.1-2.mu.; hexagonal crystals) of CuCoO2, which was washed and dried. A **Li battery** using CuCoO2 **cathode** showed satisfactory behavior.

IC ICM H01M004-58
ICS H01M006-16
CC 72-3 (Electrochemistry)
ST **lithium battery cathode** copper cobaltate; copper cobalt oxide **battery cathode**
IT **Batteries**, primary
(**lithium**-copper cobaltate, **nonaq.**)
IT **Cathodes**
(**battery**, copper cobalt oxide)
IT 7439-93-2, uses and miscellaneous
(**anode**, in **nonaq. battery** with copper cobaltate)
IT 12272-76-3P
(**cathode**, prepn. of, for **lithium nonaq. battery**)
IT 7791-03-9
(**lithium**-copper cobaltate **nonaq. battery** contg.)

L146 ANSWER 23 OF 29 HCA COPYRIGHT 2005 ACS on STN
104:12275 **Lithium battery**. (Institute for Production and Development Science, Japan). Jpn. Kokai Tokkyo Koho JP 60124355 A2 **19850703** Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-231162 19831206.

AB A **nonaq. battery** has a **Li anode** and **cathode** active material composed of CuFeO2. CuFeO2 is an anhyd. anisotropic semiconductor that provides good ion transport when oriented by pressing, and the **battery** has high capacity, good discharge property, and stable voltage. Thus, a 1:1 mol. ratio mixt. of Cu2O and Fe oxyhydroxide was mixed with .gtoreq.1M **NaOH**, hydrothermally treated (330.degree., 12 h), and rapidly cooled to obtain a fine ppt. (diam. 0.1-2 .mu.; hexagonal crystals) of CuFeO2, which was washed and dried. A **Li battery** using CuFeO2 as **cathode** active material showed satisfactory performance.

IC ICM H01M004-58
ICS H01M006-16
CC 72-3 (Electrochemistry)
ST **lithium battery cathode** copper ferrate; copper iron oxide **battery cathode**
IT **Batteries**, primary

(**lithium**-copper ferrate, **nonaq.**)
IT **Cathodes**
(**battery**, copper iron oxide)
IT 7439-93-2, uses and miscellaneous
(**anode**, in **nonaq. battery** with copper ferrate)
IT 12018-75-6P
(**cathode**, prepn. of, for **lithium nonaq. battery**)
IT 7791-03-9
(**lithium**-copper ferrate **nonaq. battery** contg.)

L146 ANSWER 24 OF 29 HCA COPYRIGHT 2005 ACS on STN
104:12274 **Lithium battery.** (Institute for Production and Development Science, Japan). Jpn. Kokai Tokkyo Koho JP 60124356 A2 **19850703** Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-231163 19831206.
AB A **nonaq. battery** has a **Li anode** and **cathode** active material composed of AgCoO2. AgCoO2 is an anhyd. anisotropic semiconductor that provides good ion transport when oriented by pressing, and the **battery** has high capacity, good discharge property, and stable voltage. Thus, a 1:1 mol. ratio mixt. of Ag2O and Co oxyhydroxide was mixed with .gtoreq.1M **NaOH**, hydrothermally treated (330.degree., 12 h), and rapidly cooled to obtain fine ppt. (diam. 0.1-0 .mu.; hexagonal crystals) of AgCoO2, which was washed and dried. A **Li battery** using AgCoO2 as the **cathode** active material showed satisfactory performance.
IC ICM H01M004-58
ICS H01M006-16
CC 72-3 (Electrochemistry)
ST **lithium battery cathode** silver cobaltate; silver cobalt oxide **battery cathode**
IT **Batteries**, primary
(**lithium**-silver cobaltate, **nonaq.**)
IT **Cathodes**
(**battery**, cobalt silver oxide)
IT 7439-93-2, uses and miscellaneous
(**anode**, in **nonaq. battery** with silver cobaltate)
IT 12271-25-9P
(**cathode**, prepn. of, for **lithium nonaq. battery**)
IT 7791-03-9
(**lithium**-silver cobaltate **nonaq. battery** contg.)

L146 ANSWER 25 OF 29 HCA COPYRIGHT 2005 ACS on STN NO
101:195305 **Nonaqueous**-electrolyte **battery**.
(Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 59134560 A2 **19840802** Showa, 2 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-9742 19830124.

AB A **battery** contains an **anode** formed by bonding **anode** active material (e.g. **Li**) to a Ni sheet, a nonwoven polymer cloth separator impregnated with electrolyte soln. contg. .gamma.-butyrolactone, and a **cathode** formed by bonding fluorinated C on Al sheet previously freed from surface oxide by acid or alkali treatment. The **battery** has a small internal resistance and provides stable operation. Thus, a **battery** prepd. by using a graphite fluoride **cathode** formed on Al plate cleaned by immersion in 0.5% **NaOH** for 10 min (29 .times. 56 mm) showed an internal resistance of 1.5-2 vs. 3.5-6 .OMEGA. for a control using nontreated Al plate. Bonding of active material to Al plate was also enhanced by the pretreatment.

IC H01M004-06; H01M004-66

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery nonaq cathode** aluminum; **cathode** graphite fluoride aluminum

IT **Batteries**, primary
(**lithium**-graphite fluoride, **nonaq** .-electrolyte)

IT **Cathodes**
(**battery**, graphite fluoride, on aluminum, **nonaq** .-electrolyte)

IT 7429-90-5, uses and miscellaneous
(**cathodes** with substrates of pretreated, graphite fluoride, **battery**, **nonaq**.-electrolyte)

NO

L146 ANSWER 26 OF 29 HCA COPYRIGHT 2005 ACS on STN
93:98492 **Batteries** with **nonaqueous** electrolyte.
Furukawa, Sanehiro; Moriwaki, Kazuo (Sanyo Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 55046288 **19800331** Showa, 2 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1978-120629 19780928.

AB The title **batteries** contain a **Li** or Mg **anode** and an Fe-Co oxide **cathode**. Thus, a soln. contg. Fe2(SO4)3 and Co sulfate was treated with a **NaOH** soln. to obtain an Fe and Co oxide coppt. The coppt. was mixed with acetylene black and fluorocarbon and pressed on the **battery** container to prep. a **cathode**. The **anode** was prepd. from a **Li** sheet and Ni mesh. The electrolyte consisted of propylene carbonate, MeOCH2CH2OMe, and LiClO4. The output voltage of the **battery** was higher than that of a **battery** using an Fe oxide **cathode**.

IC H01M004-06; H01M006-16
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery lithium** org electrolyte; iron cobalt oxide **battery cathode**
IT **Batteries**, primary
(**lithium**, org.-electrolyte)
IT 12052-28-7
(**cathodes**, in org.-electrolyte **battery** with **lithium anode**)

L146 ANSWER 27 OF 29 HCA COPYRIGHT 2005 ACS on STN
91:148515 Organic electrolyte **battery**. Kahara, Toshishige; Horiba, Tatsuo; Enado, Noboru; Tamura, Hirotake; Tanno, Kazuo (Hitachi, Ltd., Japan; Hitachi Chemical Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 54075534 **19790616** Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1977-142764 19771130.
AB An org. electrolyte **battery** consists of a light metal (**Li**, Na, etc.) **anode**, a **nonaq**. org. electrolyte, and a **cathode** prepd. by the addn. of CuO and(or) Ag2O to MnO2. The addn. of CuO and(or) Ag2O improves the oxidizing power of MnO2 and improves the **battery** discharge characteristics. Thus, MnO2 was added to a CuSO4 soln. so that MnO2 and CuO would be present in a 7:3 ratio. A 2M **Na2CO3** soln. 200 mL was added and the mixt. heated to 130.degree. until the blue CuSO4 color disappeared. The mixt. was filtered, and the ppt. was vacuum treated for 5 h at 150.degree.. This powder 10, graphite 1, and poly(tetrafluoroethylene) 0.5 parts were mixed, and pressed at 3000-5000 kg/cm2 to form a **cathode** (diam. 20 mm, elec. capacity 150 mA-h). This **cathode** was used to assemble a **battery** together with a **Li anode**, 1M LiClO4 in propylene carbonate as the electrolyte, and a Ni **battery** case. The **battery** showed only a gradual drop in potential from the initial 3.5 V when discharge across a 3 k.OMEGA. resistance, whereas a **battery** using a conventional MnO2 **cathode** (vacuum treated for 5 h at 150.degree. with CuO addn.) showed a rapid drop in cell potential.
IC H01M004-50
CC 72-2 (Electrochemistry)
ST **battery lithium** manganese oxide; cupric oxide manganese dioxide **cathode**
IT **Batteries**, primary
(**lithium**-metal oxide, with org. electrolyte)
IT Electrolytic depolarizers
(manganese dioxide, in **lithium** org. electrolyte **battery**)
IT 7439-93-2, uses and miscellaneous
(**anodes**, in org. electrolyte **battery** with metal oxide)

IT 1317-38-0, uses and miscellaneous 7782-42-5, uses and miscellaneous
(**cathodes**, in **lithium** org. electrolyte **battery**)

L146 ANSWER 28 OF 29 HCA COPYRIGHT 2005 ACS on STN
91:29628 **Cathode** material for **nonaqueous** electrolyte **battery**. Horiba, Tatsuo; Kahara, Toshiki; Ehado, Noboru; Tamura, Hiroki; Tanno, Kazuo (Hitachi, Ltd., Japan; Hitachi Chemical Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 54035328 **19790315** Showa, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1977-100401 19770824.

AB The **cathode** of a **nonaq**. electrolyte **battery** using an **anode** consisting of a light metal such as **Li** and Na is obtained by uniformly depositing a noble metal on MnO2. The use rate of the **cathode** is increased and hence the efficiency of the **battery** is improved. Thus, MnO2 40 g was added to an aq. soln. of AgNO3 31 g/L. **NaOH** (10%) 6 mL was added dropwise with stirring to ppt. MnO2 coated with Ag2O. The ppt. was then heated for 5-10 h at 180-230.degree. in Ar. This powder 10, graphite 1, and Teflon powder 2 parts were throughly mixed then pressed to give a **cathode**. A **battery** was assembled using the above **cathode**, a 1M LiClO4 soln. in a 7:3 THF-MeOCH2CH2OMe mixt. as the electrolyte, and a **Li anode**. The **battery** showed an open-circuit potential of 3.50 V.

IC H01M004-08
CC 72-2 (Electrochemistry)
ST manganese oxide **cathode lithium anode**; silver coated manganese oxide **cathode**; graphite Teflon silver **cathode battery**

IT **Batteries**, primary
(**lithium**, with **nonaq**. electrolyte)

IT Electrolytic depolarizers
(manganese oxide, silver-coated, in **lithium**-org. electrolyte **batteries**)

IT **Cathodes**
(**battery**, silver-coated manganese oxide plus graphite and Teflon)

IT 7439-93-2, uses and miscellaneous
(**anodes**, in org. electrolyte **batteries** with oxide **cathodes**)

IT 9002-84-0
(**cathodes** contg., **battery**, with graphite and silver-coated manganese oxide)

IT 7440-22-4, uses and miscellaneous
(**cathodes**, **battery**, coated on manganese oxide)

IT 7782-42-5, uses and miscellaneous
(**cathodes**, **battery**, with silver-coated
manganese oxide and Teflon)